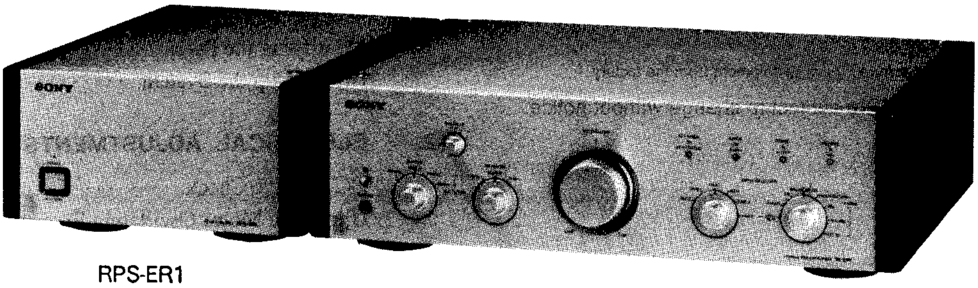
TA-ER1
RPS-ER1

SERVICE MANUAL

Germany Model



SPECIFICATIONS

Amplifier (TA-ER1)

Inputs

	Input sensitivity	Input impedance	S/N
BALANCED CD BALANCED LINE	250 mV	4 MΩ*1 (2 MΩ/2 MΩ)	More than 110 dB
CD TUNER LINE 1 ⟆ LINE 4	250 mV	2 MΩ*2	More than 110 dB
TAPE 1 TAPE 2	250 mV	2 MΩ*3	More than 110 dB
PHONO MM	4 mV	100 kΩ/ 100 pF	More than 90 dB*4
PHONO MC 3 Ω	0.2 mV	125 Ω	More than 92 dB*5
MC 30 Ω	0.4 mV	500 Ω	More than 87 dB*5

*1 100 kΩ at REC OUT ON
*2 50 kΩ at REC OUT ON
*3 20 kΩ when using tape monitor
*4 Measurement input signal level = 5 mV
*5 Measurement input signal level = 0.5 mV

Outputs

	Output	Maximum output	Output Impedance
PREOUT			
BALANCED NORM	2.5 V	20 V	4 Ω (2 Ω/2 Ω)
BALANCED INVT	2.5 V	20 V	4 Ω (2 Ω/2 Ω)
UNBALANCED NORM	1.25 V	10 V	2 Ω
UNBALANCED INVT	1.25 V	10 V	2 Ω
PHONES (front)	39 mW	1,000 mW	2 Ω
(rear)	39 mW	1,000 mW	2 Ω
REC OUT (TAPE 1)	375 mV	10 V	1 kΩ
(TAPE 2)	375 mV	10 V	1 kΩ

Frequency response	CD input :	20 Hz – 20 kHz +0, –0.1 dB
	MM input :	RIAA ±1 dB
	MC transformer :	20 Hz – 20 kHz +0, –1,0 dB
Total harmonic distortion (THD + N) (With ATTENUATOR at 0 dB, output level 5 V)	MC (both 3 Ω and 30 Ω) :	Less than 0.005%
	MM :	Less than 0.003%
	Others :	Less than 0.003%
Channel separation (all inputs)	More than 110 dB	
Dimensions	470 x 135 x 420 mm (W x H x D) (incl. projecting parts and controls)	
Weight	Approx. 20 kg	

Power Supply Unit (RPS-ER1)

Power requirements	220V – 230V AC, 50/60 Hz
Power consumption	45 W
Dimensions	260 x 135 x 395 mm (W x H x D)
Weight	Approx. 13 kg

Remote Commander (RM-ER1, supplied)

Power requirements	3 V DC
Dimensions	38 x 23 x 160 mm (W x H x D)
Weight (including batteries)	Approx. 0.2 kg

— Continued on next page —

MICROFILM

STEREO PREAMPLIFIER

SONY®

Accessories supplied

Remote Commander (1)
Sony alkaline batteries LR6/AM3 (N) (2)
Power supply connection cable (1)
Load pins (2)
Shorting plugs (4)*
Balanced input caps (4)*
Jack caps (26)*
Headphone cap (1)*

* Attached to the appropriate terminals prior to shipment from the factory.

Design and specifications are subject to change without notice.

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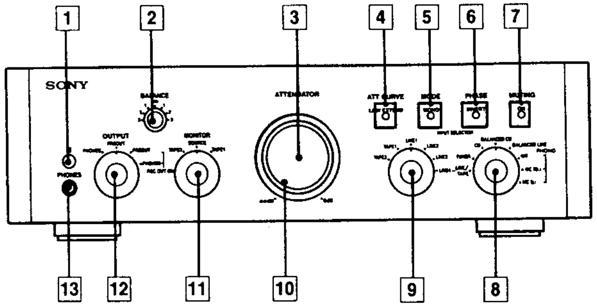
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Identifying the Parts

The TA-ER1 Stereo Preamplifier consists of an amplifier and a power supply unit. You can also use the supplied Remote Commander to operate some of the controls on the unit.
This section explains the location and the function of the controls on the amplifier, the power supply unit, and the Remote Commander.

Amplifier — Front Panel



1 Remote control sensor

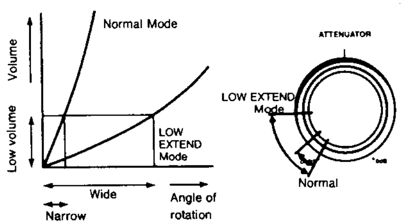
2 BALANCE knob
Adjusts the balance between the volume on the left and right channels.
Normally set this knob to the CTR (center) position.
You can adjust the volume over a range of 3 dB in 1 dB steps by turning the knob left or right.

3 ATTENUATOR knob
Adjusts the attenuation level.

4 ATT CURVE button and indicator
Changes the attenuation curve.
When you press this button, LOW EXTEND Mode is selected and the indicator lights.

LOW EXTEND Mode	: This mode widens the range of adjustment with the ATTENUATOR knob. It makes adjustment of the volume at low levels easier. This feature is useful when listening at low volume in a noiseless environment, for example, late at night.

The graph and the table below shows the difference in the attenuation curve for Normal Mode and for LOW EXTEND Mode.



	low ← attenuation → high												
Normal Mode	20	22	24	28	32	36	40	45	51	58	68	104	∞
LOW EXTEND Mode	46	48	50	54	58	62	66	71	77	84	94	130	∞

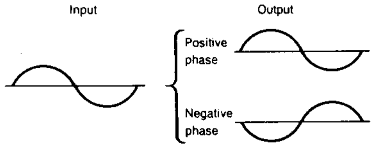
(dB)

5 MODE button and indicator
Selects stereo or monaural sound.
When you press this button, monaural sound (MONO) is selected and the indicator lights.

MONO	: The sound on the left channel and the sound on the right channel are mixed, and the same sound come out from both speakers.

6 PHASE button and indicator
Switches the phase.
When you press this button, Invert Mode is selected and the indicator lights.

INVERT	: The phase is inverted. The NORM output becomes negative phase, and the INVT output becomes positive phase. (Refer to the diagram below.)



7 MUTING button and indicator
Turns the muting function on and off.
When you press this button, the muting function is turned on and the indicator lights.
ON: The sound is turned off.

8 INPUT SELECTOR switch ①
Selects the program source.

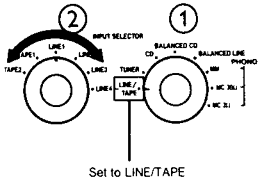
PHONO-MC 3 Ω	: Turntable with an MC (moving-coil) type cartridge that has low output power and low impedance
-MC 30 Ω	: Turntable with common MC-type cartridge
-MM	: Turntable with MM (moving-magnet) type cartridge
BALANCED CD	: CD player with balanced connection terminals
BALANCED LINE	: Audio component with balanced connection terminals
CD	: CD player (with unbalanced terminals)
TUNER	: Tuner (with unbalanced terminals)
LINE/TAPE	: Components connected to LINE 1 through LINE 4 or tape decks connected to TAPE 1 or 2 (with unbalanced terminals)

Note:
The position of INPUT SELECTOR ② does not affect the use of INPUT SELECTOR ①.

9 INPUT SELECTOR switch ②
Selects the program source when LINE/TAPE is selected with INPUT SELECTOR ①.

LINE 1 – 4	: Component connected to LINE 1 through LINE 4
TAPE 1, TAPE 2	: Tape deck connected to TAPE 1 or TAPE 2

Select a program source from LINE 1 through TAPE 2 only after selecting LINE/TAPE with INPUT SELECTOR ①.



Set to LINE/TAPE

10 Standby indicator
Starts flashing immediately after the power switch on the power supply unit is turned on. Once this unit is ready, this indicator stops flashing and stays lit.

11 MONITOR switch
Changes the source of the sound that you listen to while recording.
Normally (including those times when you are not recording), set this switch to SOURCE.

TAPE 1	: Used to listen to the sound from the tape deck when recording on TAPE 1
TAPE 2	: Used to listen to the sound from the tape deck when recording on TAPE 2
SOURCE	: Used to listen to the program source selected with the INPUT SELECTOR

12 OUTPUT switch
Switches the output.
When you select the REC OUT ON position, sound is also output to the REC OUT terminals.

PHONES	: Output sound to headphones (used when listening through headphones)
PREOUT	: Output sound to power amplifier (used when listening through the speakers)
REC OUT ON -PREOUT	: Output sound to power amplifier (used when listening through the speakers while recording)
-PHONES	: Output sound to headphones (used when listening through headphones while recording)

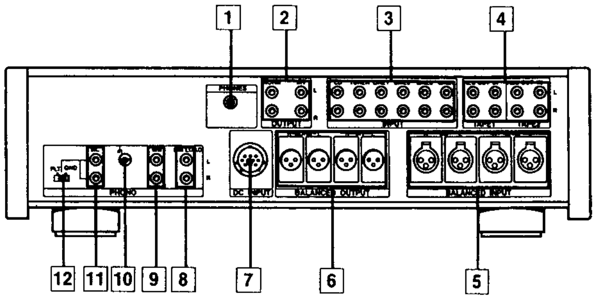
13 PHONES (headphones) jack (stereo phone jack)

This section is extracted from instruction manual.

SECTION 1
GENERAL

Identifying the Parts

Amplifier — Rear Panel



1 PHONES (headphone) jack (stereo phone jack)
To plug in stereo headphones.
The phase is normal.

2 OUTPUT (unbalanced output) terminals
To connect a power amplifier with unbalanced input terminals.
NORM : Normal phase output (used for normal connection)
INVT : Inverted phase output (used for BTL connection, etc.)

3 INPUT (unbalanced input) terminals
To connect stereo components with unbalanced output terminals.
CD : CD player
TUNER : Tuner
LINE 1 – LINE 4 : Any component with line output terminals

4 TAPE 1/TAPE 2 terminals
To connect tape deck(s).
REC OUT (recording output) : Connect to the input terminals on the tape deck.
IN (input) : Connect to the output terminals on the tape deck.

5 BALANCED INPUT terminals
To connect stereo components with balanced output terminals.
CD : CD player
LINE : Any component with line output terminals

6 BALANCED OUTPUT terminals
To connect a power amplifier with balanced input terminals.
NORM : Normal phase output (i.e., the number 2 pin is hot); used for normal connection
INVT : Inverted phase (i.e., the number 3 pin is hot); used for BTL connection, connection with a power amplifier where the number 3 pin is hot, etc.

7 DC INPUT (power input) terminal
To connect the power supply unit with the amplifier.

8 MM LOAD terminals
To connect either the supplied load pins (or any other loads that meet your needs here) if you want to change the load resistance of the MM input terminal

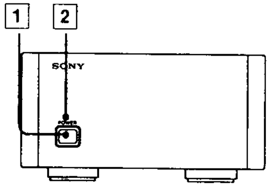
9 PHONO MM input terminals
To connect a turntable that has an MM-type cartridge.

10 ⏚ Ground terminal
To connect a ground wire of the turntable.

11 PHONO MC input terminals
To connect a turntable that has an MC-type cartridge.

12 FLTG/GND (floating/ground) switch
To change the method of grounding for the cold (shielded) pin when a turntable equipped with an MC-type cartridge is connected.
See page 14 for details.

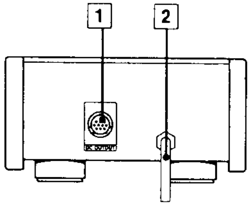
Power Supply Unit — Front Panel



1 Power switch
Turns the power on and off.

2 Power indicator
Lights when the power is turned on.

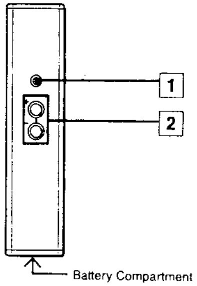
Power Supply Unit — Rear Panel



1 DC OUTPUT terminal
To connect with the Preamplifier TA-ER1.

2 Power cord
Plug this cord into a wall outlet.

Remote Commander

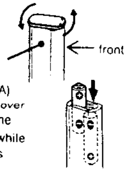


1 MUTING button
Switches the volume off. This button operates in the same way as the MUTING button on the main unit.

2 ATTENUATOR +/– buttons
Adjusts the volume. When you press these buttons, the ATTENUATOR knob on the unit moves simultaneously in the corresponding direction. Each time you press them, the ATTENUATOR knob rotates about 2.5°. When these buttons are held down, the ATTENUATOR knob continues to rotate until the button is released.
The Remote Commander can adjust the volume just one or two settings short of the minimum and maximum volumes. To turn the volume off completely, use the muting button.

Inserting batteries

1. Open the battery cover.
2. Insert two R6 (size AA) batteries. Close the cover by turning the lid in the direction for CLOSE while pressing the batteries down with the lid



Note on remote control operation
Make sure that the remote control signal sensor (see page 6) is not subject to direct sunlight or to lighting of high intensity, as this may cause malfunctioning or make remote control operation impossible

Battery replacement
When the distance from which remote control operation is possible becomes shorter, replace both batteries with new ones.

To avoid damage caused by battery leakage or corrosion
When the commander will not be used for a long time, remove the batteries.

Hooking up the System

This section explains how to install this unit and how to connect other components to it.

Before Connection and Installation

Notes on connection

On connections

- Be sure to turn the power switch off before making any connections.
- Use the red plug on the connecting cables for the right channel (R) and use the white plug for the left channel (L).
- Connect plugs firmly. Loose connections may generate hum and noise.
- Either use the cables supplied with each of the components, or purchase audio signal cables separately.
- For balanced connections, use cables with Canon XLR-3 connectors or their equivalent.

On shorting plugs and caps

- Shorting plugs and caps have been inserted in each of the phono terminals and balanced input terminals on this amplifier. Before connecting another component to that terminal, remove the shorting plug or cap. Do not insert the removed shorting plug into an output terminal (PREOUT or REC OUT) or the MM LOAD terminal.
  When no component is connected to that terminal, insert a shorting plug or a cap into that terminal. Unwanted noise may be generated if any of the terminals are open.

Keep your cables organized!

- Noise that adversely affects sound quality can be generated if a connecting cable between your amplifier and another audio component comes into contact with a power cord, or if a power cord comes into contact with a speaker wire or a tuner antenna (whether a bar antenna or an antenna lead wire). Organize your cords, cables and antennas behind your stereo equipment.

Side panels

- The amplifier and the power supply unit are equipped with left and right decorative side panels.
  Because the audio characteristics of this unit were tuned with these side panels in place, it is recommended that they not be removed.

To derive an optimum performance from the unit

Power supply

- Use power from a wall outlet if at all possible. If a portable generator or similar power supply must be used, be sure to use one that has sufficient capacity and for which the wiring is of good quality.
- Do not connect this unit to a wall outlet which is shared by equipment that generates electronic noise, such as personal computers, electric carpets, refrigerators or coffee makers.

Installation

- While this unit is protected against vibration, it is recommended that it be located on a sturdy stereo rack or shelf so that it will not be affected by vibrations from the speakers.
- When using a turntable, it is recommended that the power supply unit be located to the left of this unit (facing the unit) or on a different shelf.

Signal connections

- Since the materials used in cables and their construction can have a major effect on sound quality, we recommend that you test several different types of cables and determine which kind you like best.

Aging

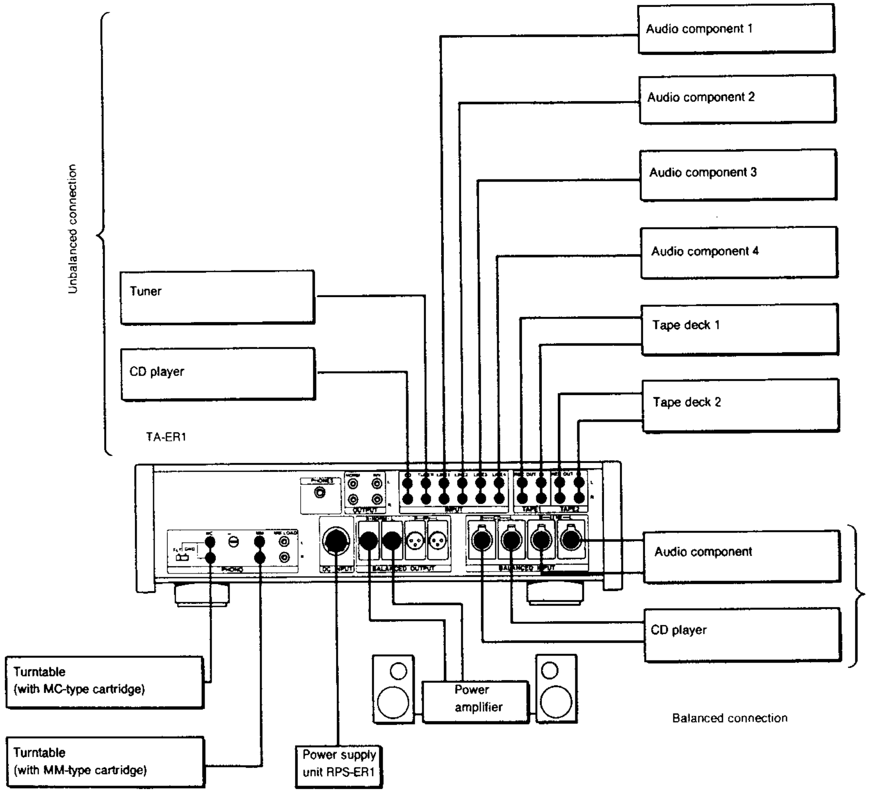
- Although this unit was operated for the minimum required aging period during the manufacturing process, you may find that as you use this unit over a period of time the sound quality increases until it reaches its optimum level. The period before this optimum level is reached is called the "aging period." If this unit is left unused for an extended period of time, another aging period may be required.
  The change in sound quality will be greatest over the first ten hours of operation, and should then taper off at about one hundred hours.

System Configuration

In order to use this unit, you need to connect a power amplifier or headphones.
You can connect other components such as those listed below:

- Turntable
- CD player or other equipment with balanced output terminals (XLR terminals)
- CD player, tuner, or other equipment with unbalanced output terminals (phono jack terminals)
- Tape deck (for playback and recording)

The diagram below shows the largest configuration of components that can be connected to this unit.



Hooking up the System

Connection with the Power Amplifier

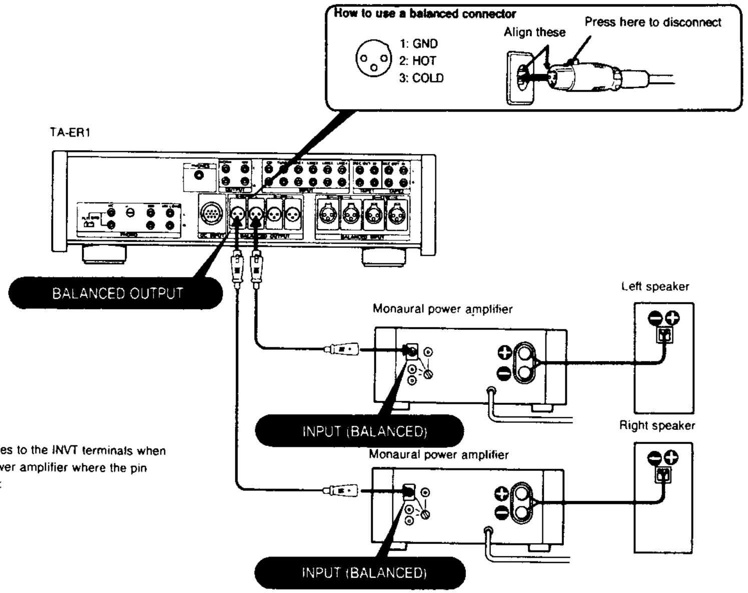
Normally, either one stereo power amplifier or two monaural power amplifiers are connected to this unit.
In cases where there is insufficient power (when listening at high volume, for example), the available power can be increased by using BTL connections.

When using BTL connections, either four monaural power amplifiers or two stereo power amplifiers are used; the power amplifiers are connected to both the NORM and the INVT terminals.

Connection Using Balanced Cables

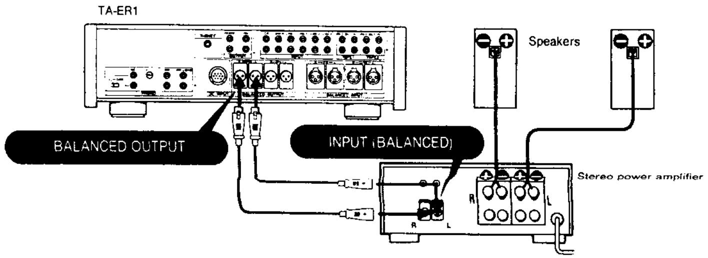
Using balanced cables (equivalent to Canon XLR-3; contact your dealer), make the connections as illustrated below.

- **Connecting monaural power amplifiers**


How to use a balanced connector
1: GND
2: HOT
3: COLD
Align these
Press here to disconnect
TA-ER1
BALANCED OUTPUT
Left speaker
Monaural power amplifier
INPUT (BALANCED)
Right speaker
Monaural power amplifier
INPUT (BALANCED)

Note:
Connect the cables to the INVT terminals when connecting a power amplifier where the pin assignments are:
1: GND
2: COLD
3: HOT

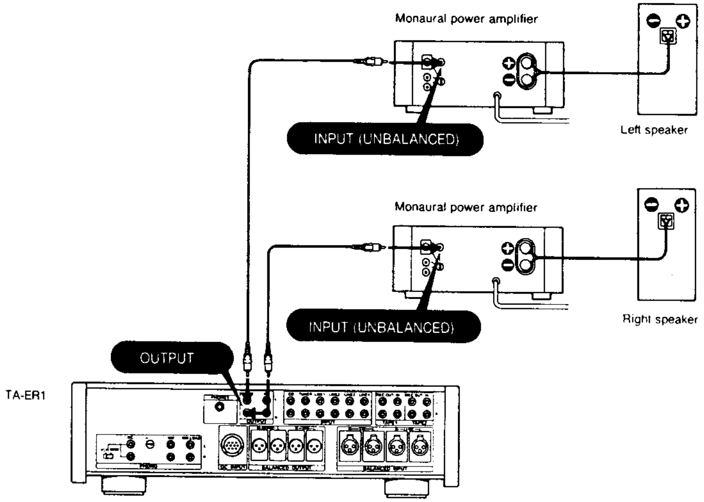
- **Connecting a stereo power amplifier**


TA-ER1
Speakers
BALANCED OUTPUT
INPUT (BALANCED)
Stereo power amplifier
R
L

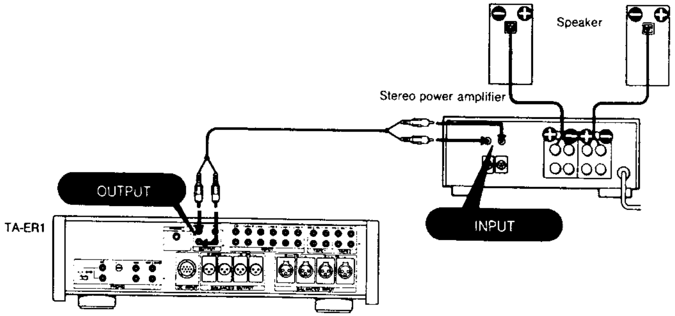
Connection Using Phono Cords

Using phono cords (commercially available), make the connections as illustrated below.

- **Connecting monaural power amplifiers**


Monaural power amplifier
Left speaker
INPUT (UNBALANCED)
Monaural power amplifier
Right speaker
INPUT (UNBALANCED)
OUTPUT
TA-ER1

- **Connecting a stereo power amplifier**


Speaker
Stereo power amplifier
OUTPUT
INPUT
TA-ER1

Hooking up the System

Connection with the Power Amplifier

Using BTL Connection

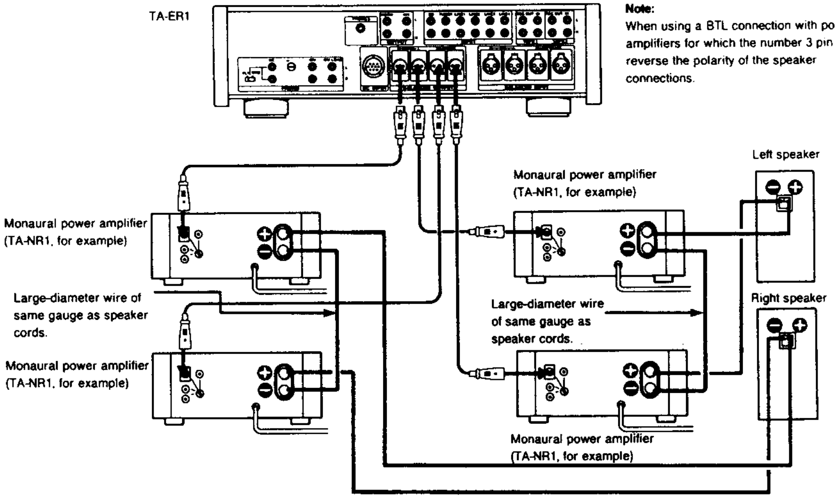
Connect four monaural power amplifiers or two stereo power amplifiers. Make sure that you connect the positive (+) and negative (–) terminals of the speakers correctly.

Note:
You cannot use BTL connection with a power amplifier which has BTL circuit system in itself.

Connect one channel first by following the procedure below, and then connect the other channel in the same way.

1. Connect the two – output terminals of the power amplifiers with each other.
2. Connect the + output terminal of the normal phase (i.e., the power amplifier connected to NORM) with the + terminal of the speaker.
3. Connect the + output terminal of the inverted phase (i.e., the power amplifier connected to INVT) with the – terminal of the speaker.

■ **Example: BTL connection using balanced cables — with monaural power amplifiers**

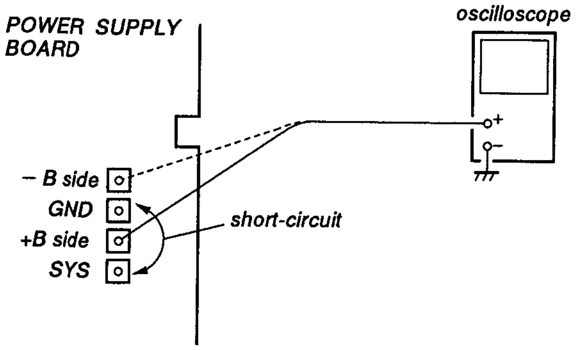

TA-ER1
Left speaker
Monaural power amplifier (TA-NR1, for example)
Monaural power amplifier (TA-NR1, for example)
Large-diameter wire of same gauge as speaker cords.
Right speaker
Large-diameter wire of same gauge as speaker cords.
Monaural power amplifier (TA-NR1, for example)
Monaural power amplifier (TA-NR1, for example)

Note:
When using a BTL connection with power amplifiers for which the number 3 pin is hot, reverse the polarity of the speaker connections.

SECTION 2
ELECTRICAL ADJUSTMENTS

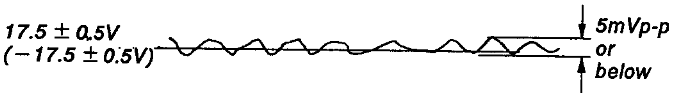
DC VOLTAGE CHECK

Connection:


POWER SUPPLY BOARD
oscilloscope
– B side
GND
+B side
SYS
short-circuit
+
–

Procedure:

1) Turn power on.
2) Connect an oscilloscope to +B side or – B side of DC OUT terminals and check the voltage value and the waveform.
   + B side :17.5 ± 0.5 V
   – B side : – 17.5 ± 0.5 V

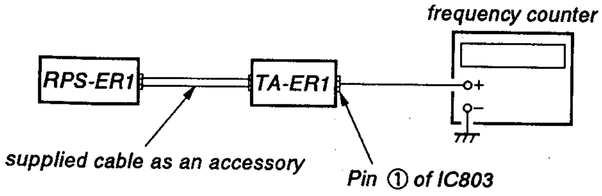

17.5 ± 0.5V
(–17.5 ± 0.5V)
5mVp-p
or
below

3) Turn power off.

ULTRASONIC MOTOR OSCILLATING FREQUENCY ADJUSTMENT

(Adjust on the malfunction of the motor or on replacement of the motor.)

Connection :


frequency counter
RPS-ER1
TA-ER1
+
–
supplied cable as an accessory
Pin ① of IC803

Procedure :

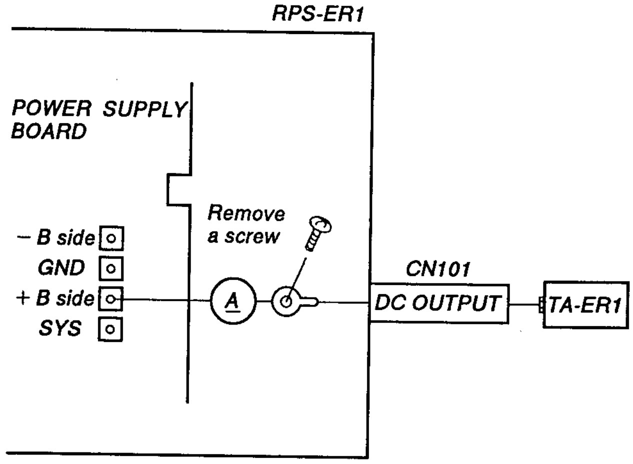
1) Short-circuit between Pin ① and Pin ② of CN805 on Motor Drive Board.
2) Turn power on.
3) Wait until the stand-by indicator lights up.
4) Adjust with RV801 so that the reading on the frequency counter becomes 164.0 ± 0.5 kHz.
5) Turn power off.
6) Release the short-circuit position.

UNIT BOARDS BIAS ADJUSTMENT

Switch position :

OUTPUT	REC OUT ON – PHONES
TAPE MONITOR	TAPE 1
ATTENUATOR	∞ dB (Minimum)
INPUT SELECTOR 1	LINE/TAPE
INPUT SELECTOR 2	TAPE 2

Connection :


RPS-ER1
POWER SUPPLY BOARD
– B side
GND
+ B side
SYS
Remove a screw
A
CN101
DC OUTPUT
TA-ER1

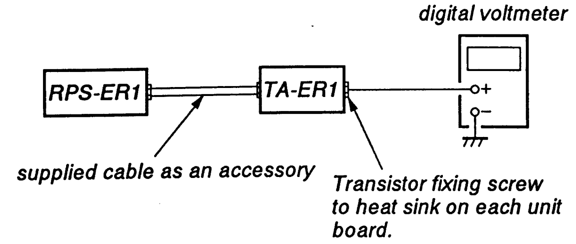
Procedure :

1) Turn power switch on.
2) Minimize the volume control on each board by turning it counterclockwise ; RV501 (EQ) , RV3101 (PI), RV3201 (MI), RV4101 (PO), or RV4201 (MO).
3) Check the electric current value is 300 ± 50 mA.
4) Adjust the volume control so that the electric current value increases 50 ± 1 mA on each board.
5) Check the total electric current is 800 ± 50 mA.
6) Turn power off.

OFFSET VOLTAGE ADJUSTMENT AND CHECK

Switch position : The same as Unit Boards Bias Adjustment.

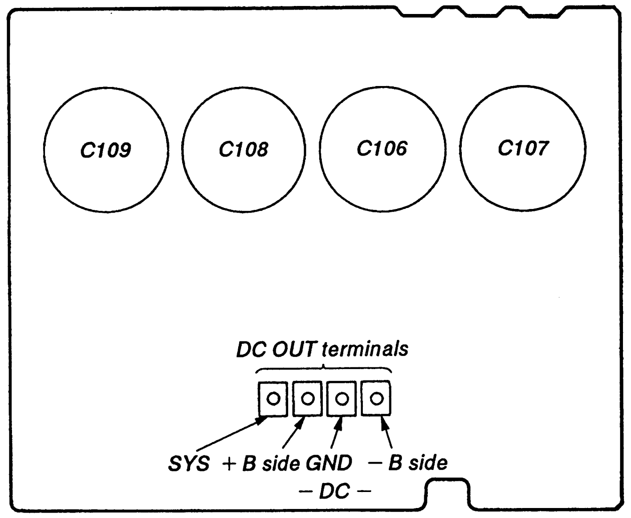
Connection :

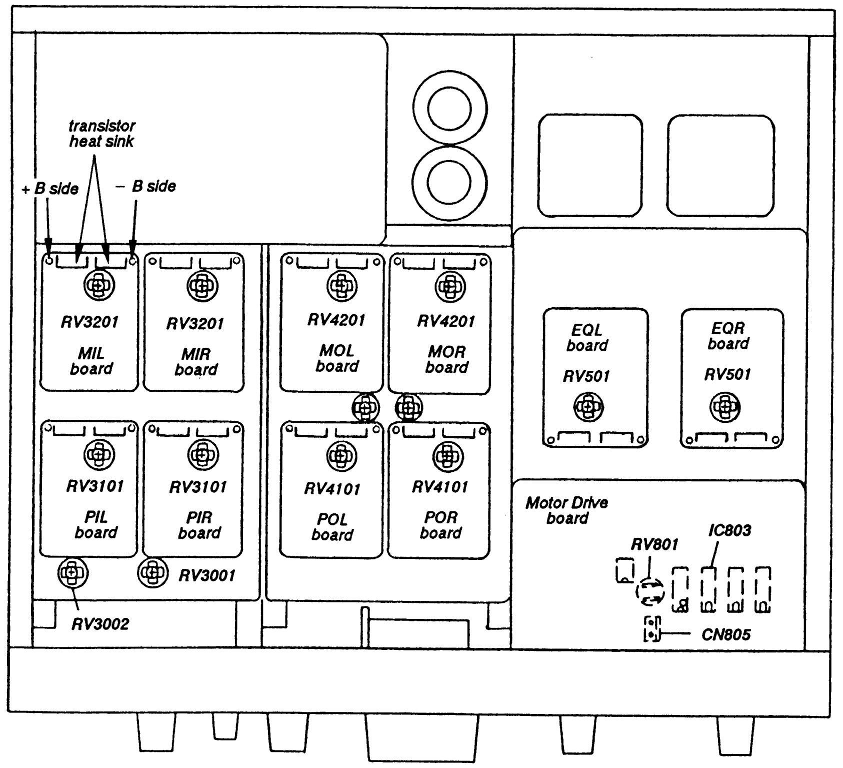

digital voltmeter
RPS-ER1
TA-ER1
supplied cable as an accessory
Transistor fixing screw to heat sink on each unit board.

Procedure :

1) Turn power on.
2) Check the offset voltages of MIL and MIR unit boards outputs (on the transistor fixing screw to heat sink) are within ± 40 mV.
3) Adjust with RV3002 so that the offset voltage of PIL unit board output is within ± 1 mV.
4) Adjust with RV3001 so that the offset voltage of PIR unit board output is within ± 1 mV.
5) Check the offset voltages of POL and POR unit boards outputs are within ± 2mV.
6) Adjust with RV4002 so that the offset voltage of MOL unit board output is within ± 1 mV.
7) Adjust with RV4001 so that the offset voltage of MOR unit board output is within ± 1 mV.
8) Check the offset voltages of EQL and EQR unit boards outputs are within ± 2 mV.
9) Turn power off.

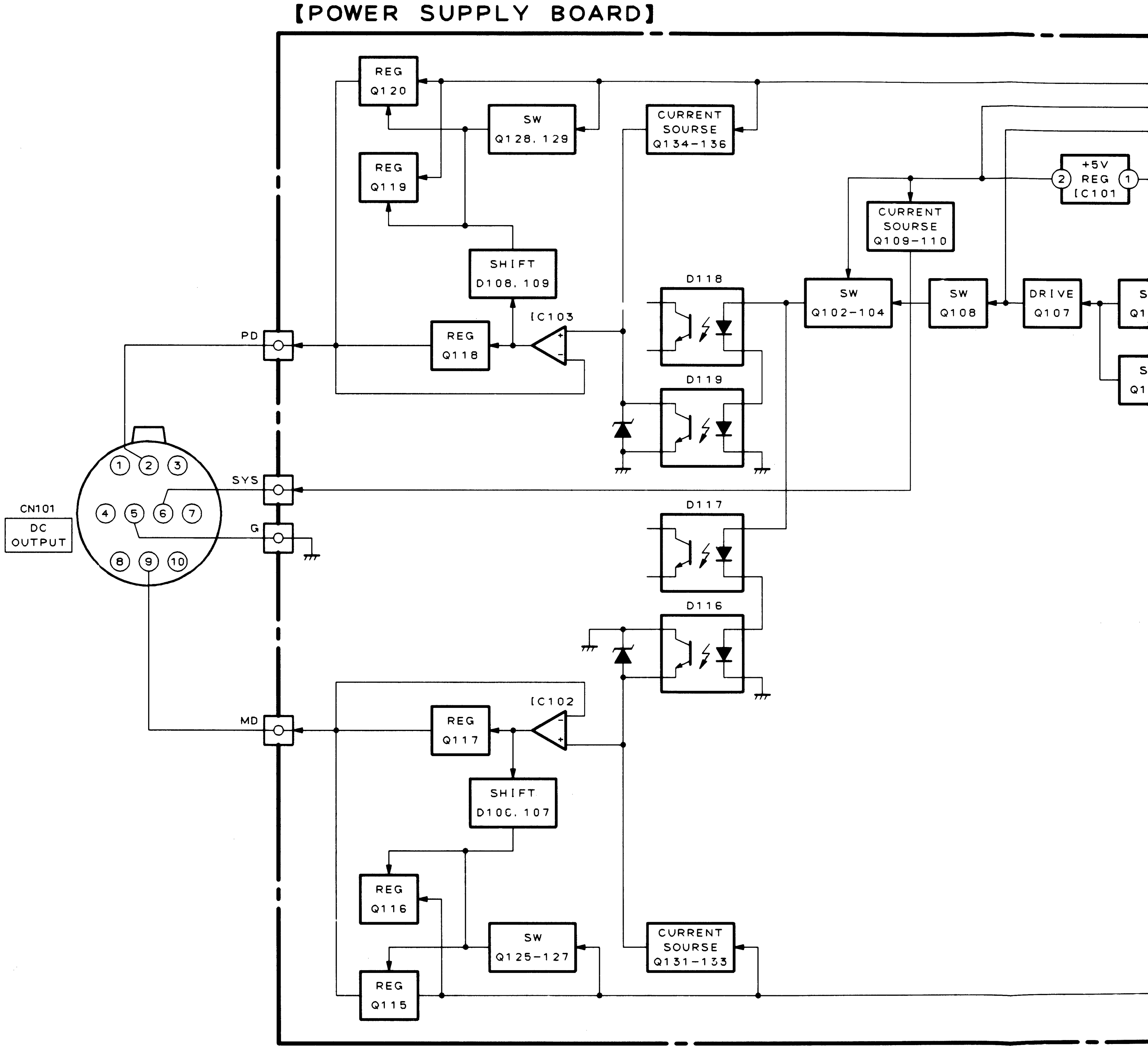
[POWER SUPPLY BOARD] – *Component Side* –


C109
C108
C106
C107
DC OUT terminals
SYS
+ B side
GND
– B side
– DC –


transistor heat sink
+ B side
– B side
RV3201
MIL board
RV3201
MIR board
RV4201
MOL board
RV4201
MOR board
EQL board
RV501
EQR board
RV501
RV3101
PIL board
RV3101
PIR board
RV4101
POL board
RV4101
POR board
RV3001
RV3002
Motor Drive board
RV801
IC803
CN805

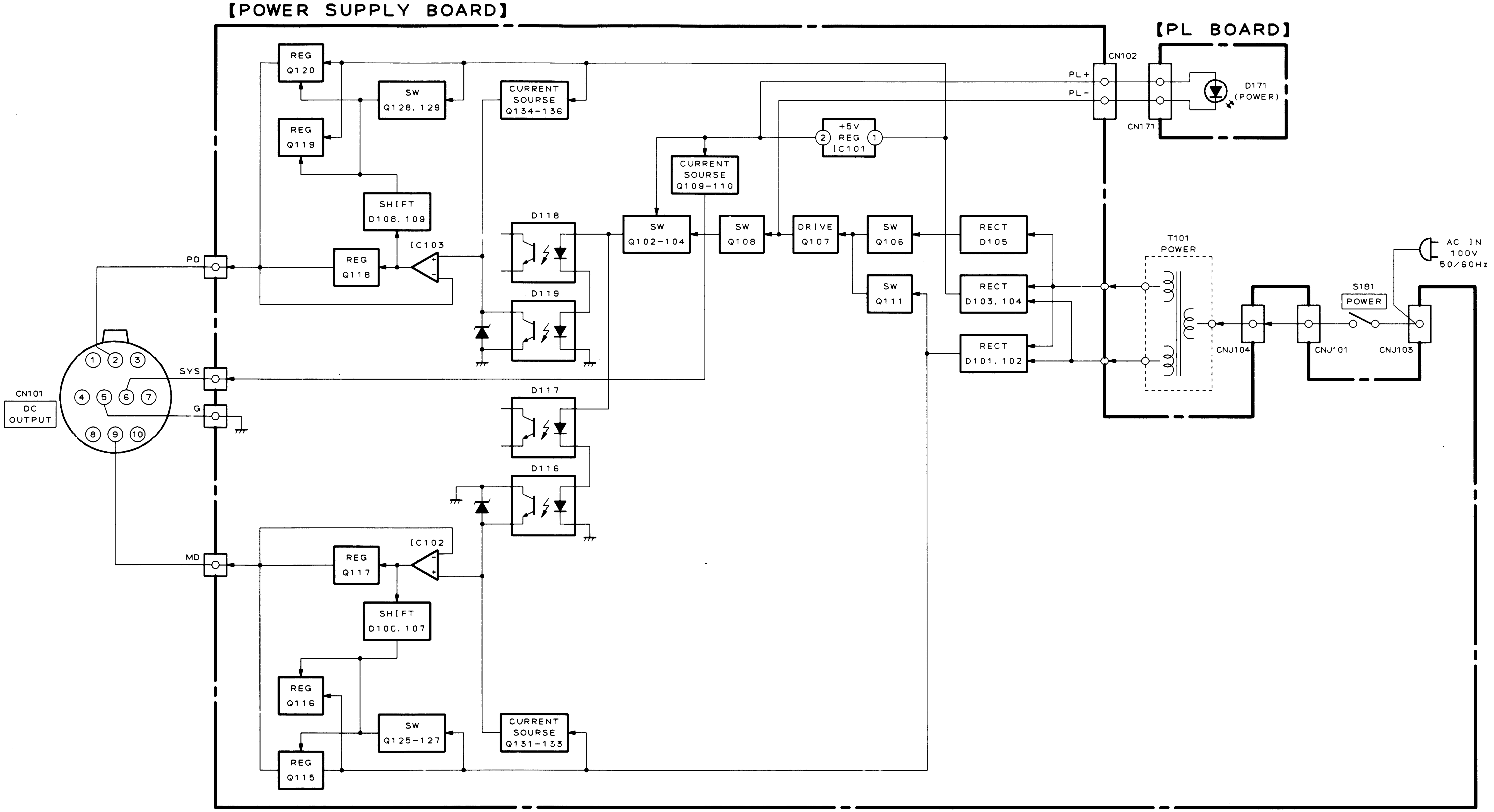
SECTION 3
DIAGRAMS

3-1. POWER SUPPLY SECTION BLOCK DIAGRAM

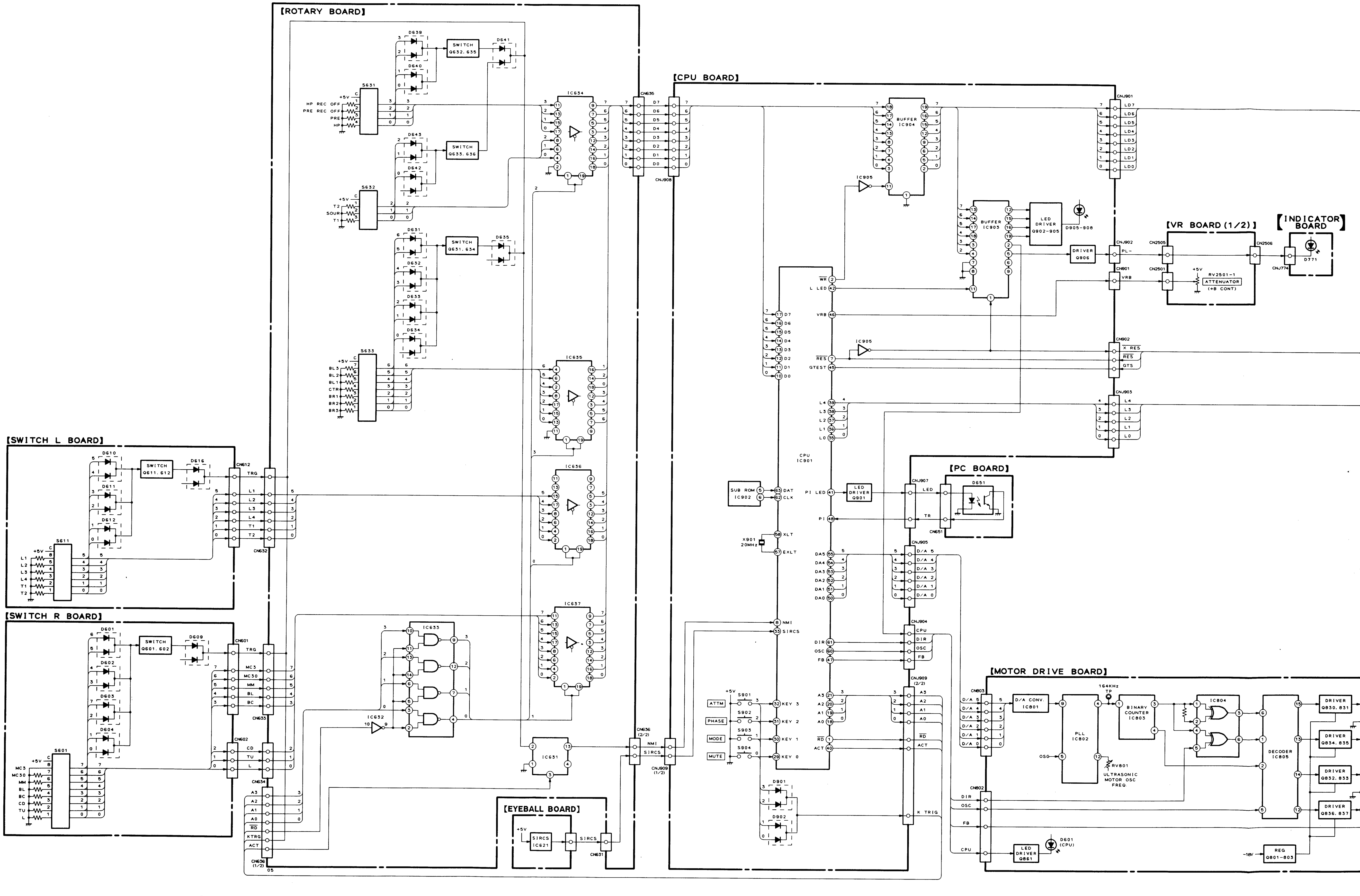

[POWER SUPPLY BOARD]
REG Q120
REG Q119
SW Q128, 129
CURRENT SOURSE Q134–136
+5V REG IC101
CURRENT SOURSE Q109–110
SHIFT D108, 109
D118
IC103
REG Q118
SW Q102–104
SW Q108
DRIVE Q107
D119
PD
SYS
G
MD
CN101 DC OUTPUT
D117
D116
IC102
REG Q117
SHIFT D10C, 107
REG Q116
SW Q125–127
CURRENT SOURCE Q131–133
REG Q115

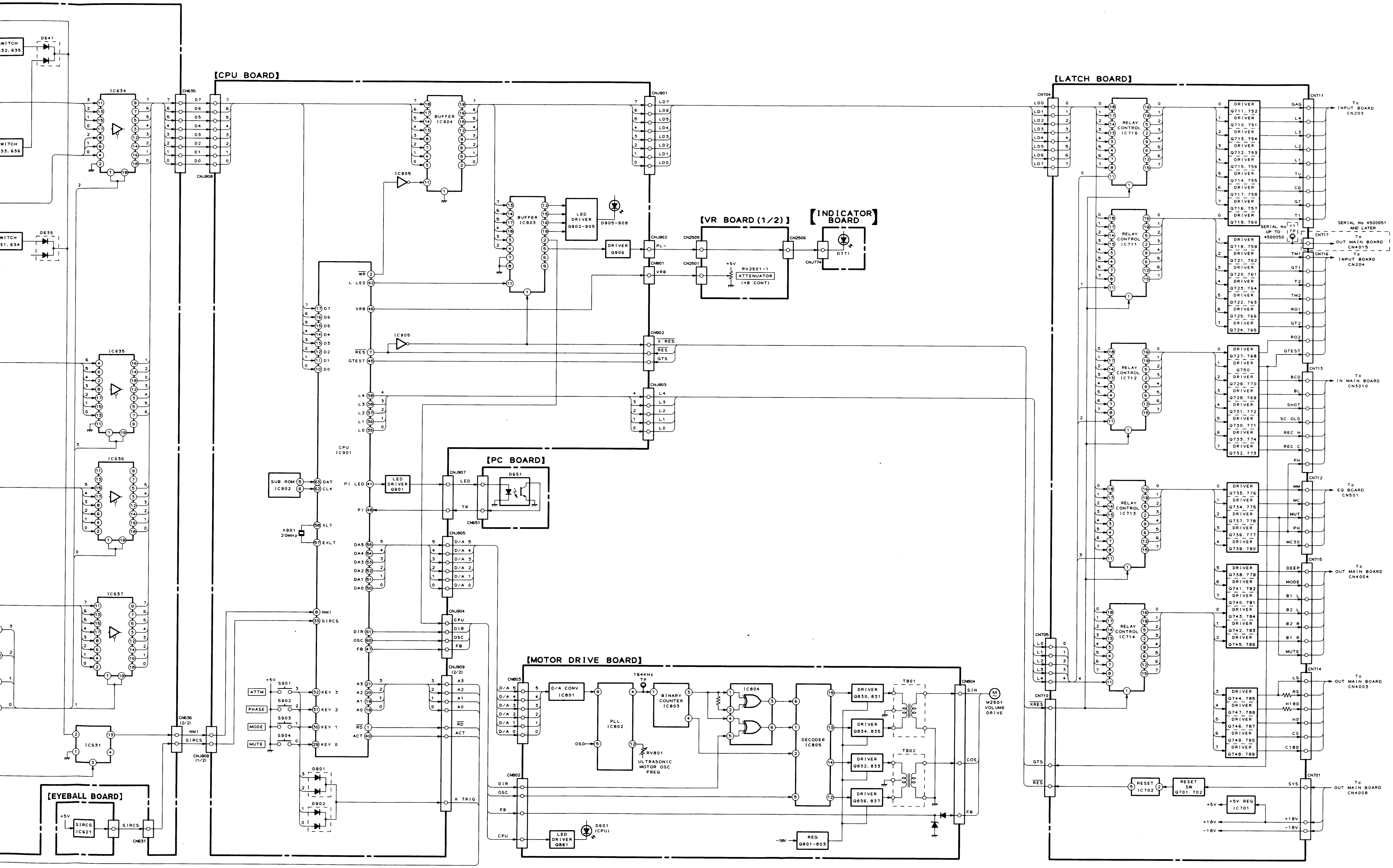
SECTION 3
DIAGRAMS

3-1. POWER SUPPLY SECTION BLOCK DIAGRAM

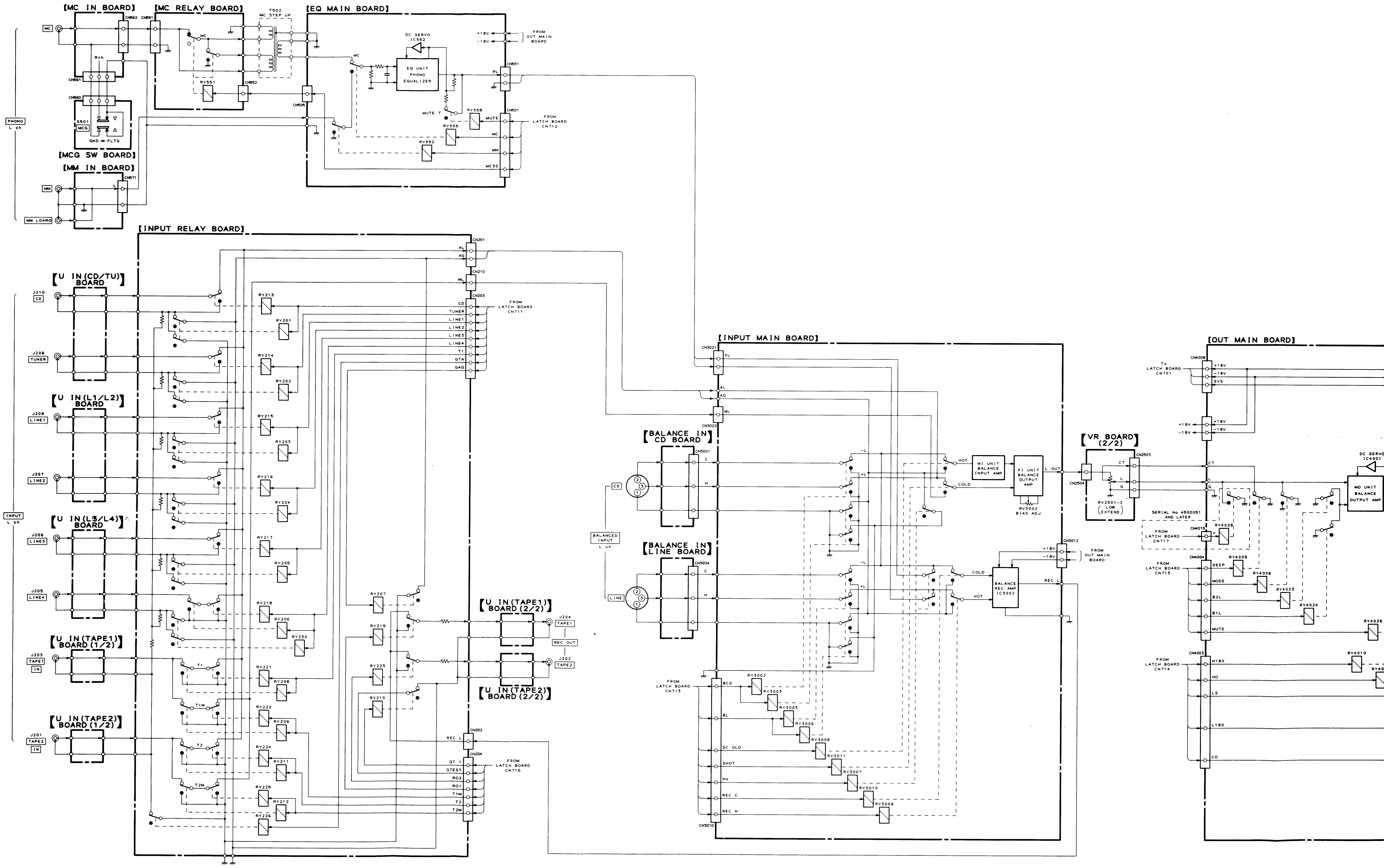

[POWER SUPPLY BOARD]
[PL BOARD]
REG Q120
SW Q128, 129
CURRENT SOURSE Q134–136
REG Q119
SHIFT D108, 109
REG Q118
IC103
D118
D119
D117
D116
CURRENT SOURSE Q109–110
+5V REG IC101
SW Q102–104
SW Q108
DRIVE Q107
SW Q106
SW Q111
RECT D105
RECT D103, 104
RECT D101, 102
CN102
PL+
PL−
CN171
D171 (POWER)
T101 POWER
S181 POWER
AC IN 100V 50/60Hz
CNJ104
CNJ101
CNJ103
PD
SYS
G
MD
CN101 DC OUTPUT
1
2
3
4
5
6
7
8
9
10
REG Q117
IC102
SHIFT D10C, 107
REG Q116
SW Q125–127
CURRENT SOURSE Q131–133
REG Q115

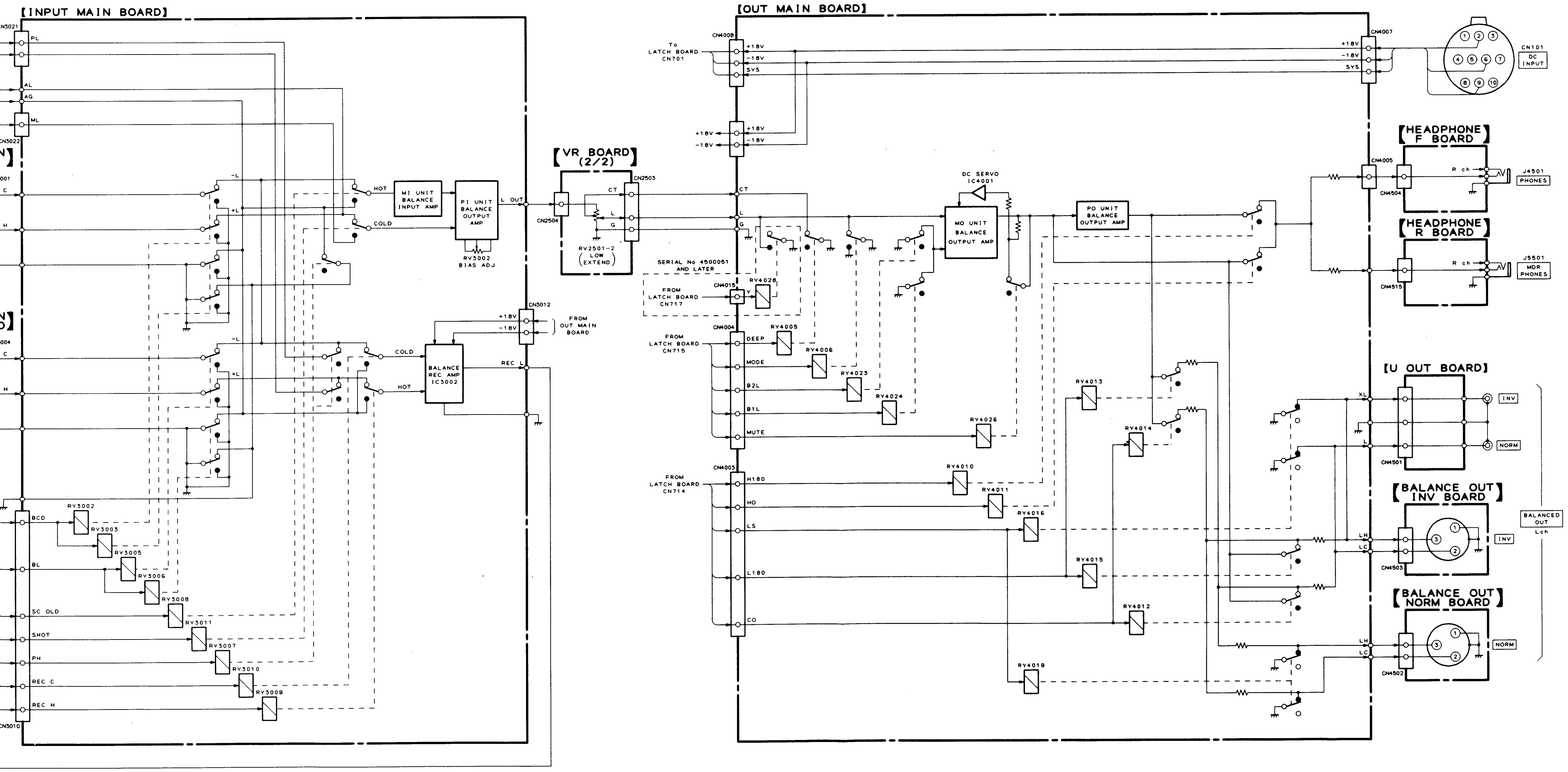
3-2. CONTROL SECTION BLOCK DIAGRAM


[ROTARY BOARD]
[CPU BOARD]
[SWITCH L BOARD]
[SWITCH R BOARD]
[EYEBALL BOARD]
[PC BOARD]
[VR BOARD (1/2)]
[INDICATOR BOARD]
[MOTOR DRIVE BOARD]
S631
HP REC OFF
PRE REC OFF
PRE
HP
S632
T2
SOUR
T1
S633
BL3
BL2
BL1
CTR
BR1
BR2
BR3
SWITCH Q632, 635
SWITCH Q633, 636
SWITCH Q631, 634
D639
D640
D641
D643
D642
D631
D632
D633
D634
D635
IC634
IC635
IC636
IC637
IC633
IC632
IC631
CN635
CN636
CN631
CN632
CN633
CN634
CN612
CN601
CN602
S611
S601
D610
D611
D612
D616
SWITCH Q611, 612
D601
D602
D603
D604
D609
SWITCH Q601, 602
TRG
L1
L2
L3
L4
T1
T2
MC3
MC30
MM
BL
BC
CD
TU
L
A3
A2
A1
A0
RD
KTRG
ACT
SIRCS IC621
SIRCS
+5V
D7
D6
D5
D4
D3
D2
D1
D0
CNJ908
CNJ909
NMI
SIRCS
BUFFER IC904
IC905
BUFFER IC903
LED DRIVER Q902-905
D905-908
DRIVER Q906
CNJ901
LD7
LD6
LD5
LD4
LD3
LD2
LD1
LD0
CNJ902
PL-
CN901
VRB
CN2505
CN2501
CN2506
RV2501-1
ATTENUATOR (+B CONT)
CNJ774
D771
CN902
X RES
RES
GTS
CNJ903
L4
L3
L2
L1
L0
CPU IC901
WR
L LED
VRB
RES
GTEST
SUB ROM IC902
DAT
CLK
PI LED
PI
LED DRIVER Q901
X901 20MHz
XLT
EXLT
DA5
DA4
DA3
DA2
DA1
DA0
CNJ907
LED
TR
CN651
D651
CNJ905
D/A 5
D/A 4
D/A 3
D/A 2
D/A 1
D/A 0
CNJ904
CPU
DIR
OSC
FB
CNJ909 (2/2)
A3
A2
A1
A0
RD
ACT
K TRIG
S901
S902
S903
S904
ATTM
PHASE
MODE
MUTE
KEY 3
KEY 2
KEY 1
KEY 0
D901
D902
CN803
CN802
D/A CONV. IC801
PLL IC802
164KHz TP
BINARY COUNTER IC803
IC804
DECODER IC805
OSC
RV801
ULTRASONIC MOTOR OSC FREQ
DRIVER Q830, 831
DRIVER Q834, 835
DRIVER Q832, 833
DRIVER Q836, 837
LED DRIVER Q861
D601 (CPU)
REG Q801-803
-18V


【CPU BOARD】
【LATCH BOARD】
【VR BOARD (1/2)】
【INDICATOR BOARD】
【PC BOARD】
【MOTOR DRIVE BOARD】
【EYEBALL BOARD】
IC634
IC635
IC636
IC637
IC631
D641
D635
CN635
CN636 (2/2)
CN631
CNJ908
CNJ909 (1/2)
CNJ901
CNJ902
CNJ903
CNJ904
CNJ905
CNJ907
CNJ909 (2/2)
BUFFER IC904
BUFFER IC903
IC905
LED DRIVER Q902-905
D905-908
DRIVER Q906
CPU IC901
SUB ROM IC902
X901 20MHz
LED DRIVER Q901
D651
CN651
CN2505
CN2501
CN2506
CNJ774
RV2501-1 ATTENUATOR (+B CONT)
D771
S901
S902
S903
S904
ATTM
PHASE
MODE
MUTE
D901
D902
SIRCS IC621
D/A CONV. IC801
PLL IC802
164KHz TP
BINARY COUNTER IC803
IC804
DECODER IC805
RV801 ULTRASONIC MOTOR OSC FREQ
DRIVER Q830, 831
DRIVER Q834, 835
DRIVER Q832, 833
DRIVER Q836, 837
T801
T802
M2501 VOLUME DRIVE
CN803
CN802
CN804
LED DRIVER Q861
D601 (CPU)
REG Q801-803
CN704
CN705
CN710
RELAY CONTROL IC710
RELAY CONTROL IC711
RELAY CONTROL IC712
RELAY CONTROL IC713
RELAY CONTROL IC714
RESET IC702
RESET SW Q701, 702
+5V REG IC701
CN711
CN717
CN716
CN713
CN712
CN715
CN714
CN701
To INPUT BOARD CN203
SERIAL No 4500051 AND LATER
SERIAL No UP TO 4500050
To OUT MAIN BOARD CN4015
To INPUT BOARD CN204
To IN MAIN BOARD CN3010
To EQ BOARD CN501
To OUT MAIN BOARD CN4004
To OUT MAIN BOARD CN4003
To OUT MAIN BOARD CN4008

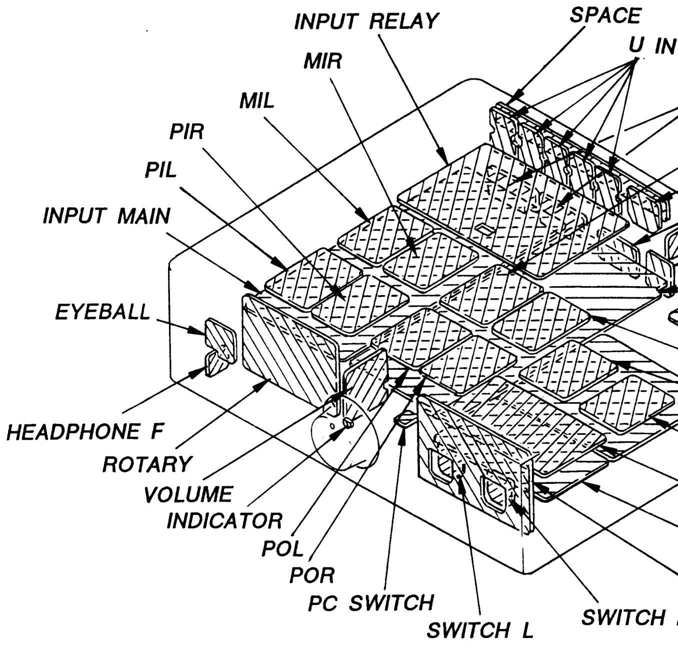
3-3. SIGNAL SECTION BLOCK DIAGRAM


[MC IN BOARD]
[MC RELAY BOARD]
[EQ MAIN BOARD]
T502
MC STEP UP
MC
CN562
CN551
CN561
CN560
CN552
CN505
CN551
CN501
CN571
Rch
RY551
S501
MCG
GND ⟷ FLTG
[MCG SW BOARD]
[MM IN BOARD]
MM
MM LOARD
PHONO
L ch
DC SERVO
IC552
EQ UNIT
PHONO
EQUALIZER
+18V
-18V
FROM
OUT MAIN
BOARD
PL
MUTE
MUTE T
RY558
RY555
RY552
MC
MM
MC30
FROM
LATCH BOARD
CN712
[INPUT RELAY BOARD]
CN201
AL
AG
CN210
ML
CN203
CD
TUNER
LINE1
LINE2
LINE3
LINE4
T1
GTA
GAG
FROM
LATCH BOARD
CN711
[U IN(CD/TU) BOARD]
J210
CD
J209
TUNER
[U IN(L1/L2) BOARD]
J208
LINE1
J207
LINE2
INPUT
L ch
[U IN(L3/L4) BOARD]
J206
LINE3
J205
LINE4
[U IN(TAPE1) BOARD (1/2)]
J203
TAPE1
IN
[U IN(TAPE2) BOARD (1/2)]
J201
TAPE2
IN
RY213
RY201
RY214
RY202
RY215
RY203
RY216
RY204
RY217
RY205
RY218
RY206
RY230
RY221
RY208
RY222
RY209
RY224
RY211
RY225
RY212
RY226
RY207
RY219
RY223
RY210
T1
T1M
T2
T2M
[U IN(TAPE1) BOARD (2/2)]
J204
TAPE1
REC OUT
J202
TAPE2
[U IN(TAPE2) BOARD (2/2)]
CN202
REC L
CN204
GT 1
GTEST
RO2
RO1
T1M
T2
T2M
FROM
LATCH BOARD
CN716
[INPUT MAIN BOARD]
CN3021
PL
AL
AG
ML
CN3022
[BALANCE IN CD BOARD]
CN3001
C
H
CD
BALANCED
INPUT
L ch
[BALANCE IN LINE BOARD]
CN3004
LINE
-L
+L
HOT
COLD
MI UNIT
BALANCE
INPUT AMP
PI UNIT
BALANCE
OUTPUT
AMP
L OUT
RV3002
BIAS ADJ
CN3012
+18V
-18V
FROM
OUT MAIN
BOARD
BALANCE
REC AMP
IC3002
REC L
FROM
LATCH BOARD
CN713
BCD
BL
SC OLD
SHOT
PH
REC C
REC H
CN3010
RY3002
RY3003
RY3005
RY3006
RY3008
RY3011
RY3007
RY3010
RY3009
[VR BOARD (2/2)]
CN2503
CN2504
CT
L
G
RV2501-2
LOW
(EXTEND)
[OUT MAIN BOARD]
CN4008
To
LATCH BOARD
CN701
+18V
-18V
SYS
+18V
-18V
DC SERVO
IC4001
MO UNIT
BALANCE
OUTPUT AMP
SERIAL No 4500051
AND LATER
FROM
LATCH BOARD
CN717
CN4015
RY4028
CN4004
FROM
LATCH BOARD
CN715
DEEP
MODE
B2L
B1L
MUTE
RY4005
RY4006
RY4023
RY4024
RY4026
CN4003
FROM
LATCH BOARD
CN714
H180
HO
LS
L180
CO
RY4010

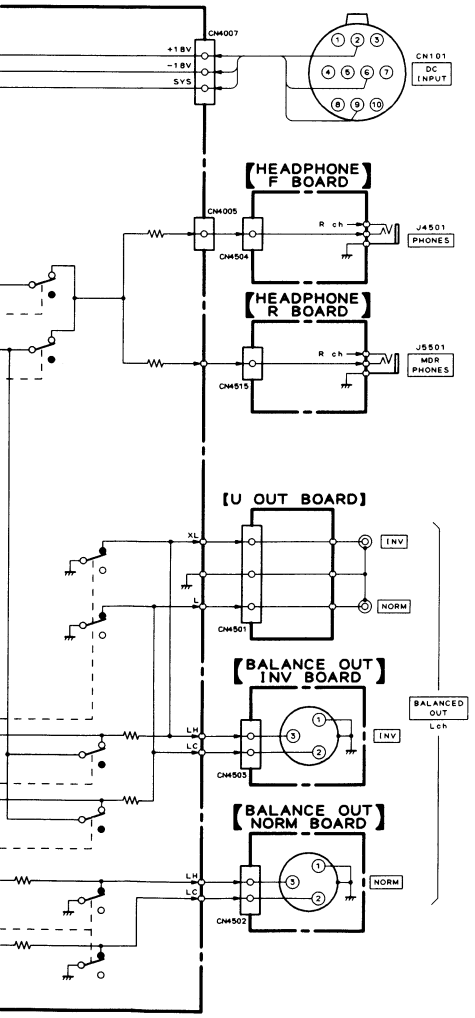


[INPUT MAIN BOARD]
CN3021
PL
AL
AG
ML
CN3022
C
H
-L
+L
HOT
COLD
MI UNIT BALANCE INPUT AMP
PI UNIT BALANCE OUTPUT AMP
L OUT
RV3002 BIAS ADJ
CN3012
+18V
-18V
FROM OUT MAIN BOARD
BALANCE REC AMP IC3002
REC L
BCD
BL
SC OLD
SHOT
PH
REC C
REC H
CN3010
RY3002
RY3003
RY3005
RY3006
RY3008
RY3011
RY3007
RY3010
RY3009
[VR BOARD (2/2)]
CN2503
CN2504
CT
L
G
RV2501-2 LOW (EXTEND)
SERIAL No 4500051 AND LATER
FROM LATCH BOARD CN717
CN4015
RY4028
[OUT MAIN BOARD]
CN4008
To LATCH BOARD CN701
+18V
-18V
SYS
FROM LATCH BOARD CN715
CN4004
DEEP
MODE
B2L
B1L
MUTE
RY4005
RY4006
RY4023
RY4024
RY4026
FROM LATCH BOARD CN714
CN4003
H180
HO
LS
L180
CO
RY4010
RY4011
RY4016
RY4015
RY4012
RY4019
RY4013
RY4014
DC SERVO IC4001
MO UNIT BALANCE OUTPUT AMP
PO UNIT BALANCE OUTPUT AMP
CN4007
CN101 DC INPUT
CN4005
[HEADPHONE F BOARD]
CN4504
R ch
J4501 PHONES
[HEADPHONE R BOARD]
CN4515
J5501 MDR PHONES
[U OUT BOARD]
XL
L
CN4501
INV
NORM
[BALANCE OUT INV BOARD]
LH
LC
CN4503
[BALANCE OUT NORM BOARD]
CN4502
BALANCED OUT Lch

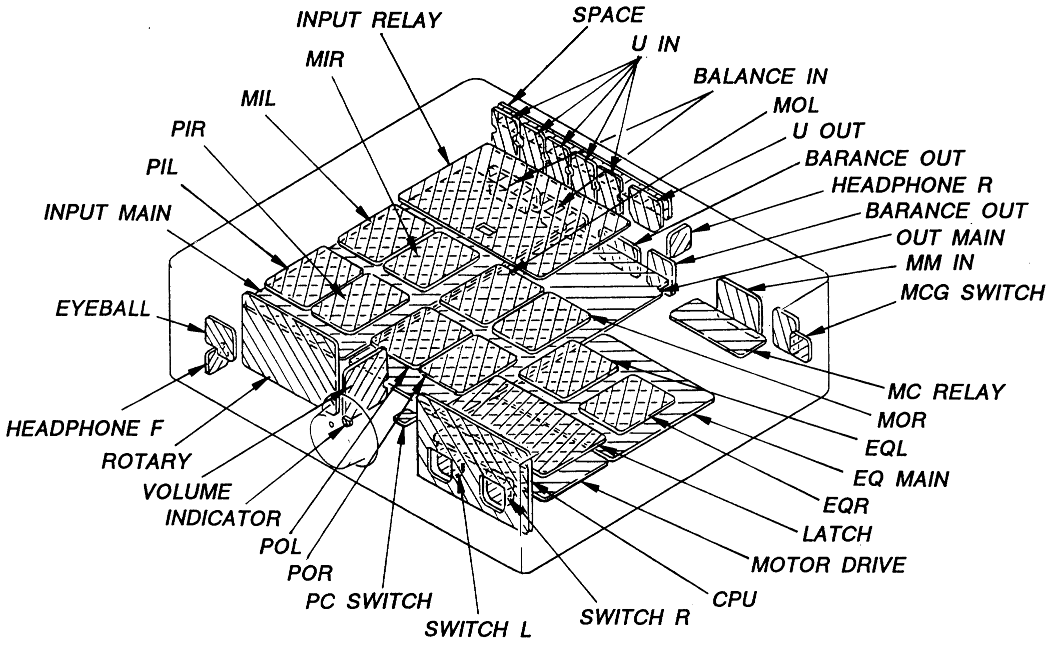
- **Circuit Boards Location**



INPUT RELAY
SPACE
U IN
MIR
MIL
PIR
PIL
INPUT MAIN
EYEBALL
HEADPHONE F
ROTARY
VOLUME
INDICATOR
POL
POR
PC SWITCH
SWITCH L
SWITCH

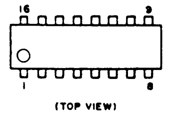

CN4007
+18V
-18V
SYS
CN101
DC INPUT
[HEADPHONE F BOARD]
CN4005
CN4504
R ch
J4501
PHONES
[HEADPHONE R BOARD]
CN4515
J5501
MDR PHONES
[U OUT BOARD]
XL
L
INV
NORM
CN4501
[BALANCE OUT INV BOARD]
LH
LC
CN4503
INV
BALANCED OUT Lch
[BALANCE OUT NORM BOARD]
LH
LC
CN4502
NORM

- **Circuit Boards Location**

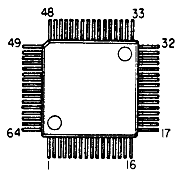

INPUT RELAY
SPACE
U IN
MIR
BALANCE IN
MIL
MOL
PIR
U OUT
BARANCE OUT
PIL
HEADPHONE R
INPUT MAIN
BARANCE OUT
OUT MAIN
MM IN
MCG SWITCH
EYEBALL
MC RELAY
MOR
HEADPHONE F
EQL
ROTARY
EQ MAIN
VOLUME
EQR
INDICATOR
LATCH
POL
MOTOR DRIVE
POR
CPU
PC SWITCH
SWITCH R
SWITCH L

- **Semiconductor Lead Layouts**

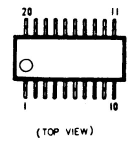
HD14046BP


16
9
1
8
(TOP VIEW)

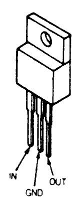
HD6475208F-001


48
33
49
32
64
17
1
16

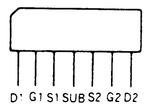
SN74HC373ANS


20
11
1
10
(TOP VIEW)

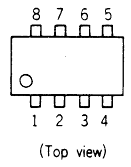
TA7805S



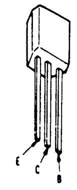
μPA68HA-M


D1 G1 S1 SUB S2 G2 D2

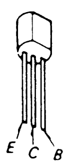
X24C01P


8 7 6 5
1 2 3 4
(Top view)

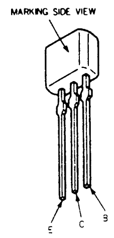
DTA114ES
DTC114ES
2SA1344



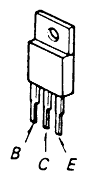
2SA1015-GR
2SA1815-GR



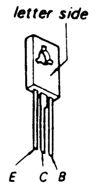
2SA1175-FEK
2SC2785-FEK


MARKING SIDE VIEW
E
C
B

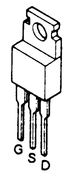
2SA1606-E
2SA985A-QP
2SC2275A-P
2SC4159-E



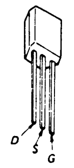
2SB731-KFE
2SD809-KFE


letter side
E C B

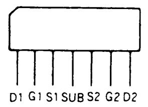
2SJ76
2SK213
2SK208GR3



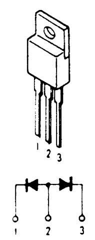
2SK241-GR



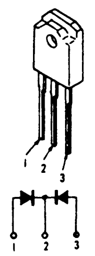
2SK389-GR


D1 G1 S1 SUB S2 G2 D2

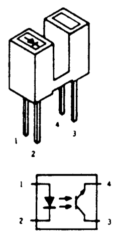
C10P20FUR



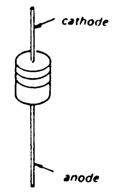
C16P20F
C16P20FR



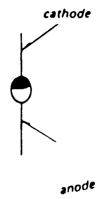
GP1S51



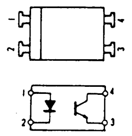
HZS18-1L
HZS6A1L
UZL-12M3


cathode
anode

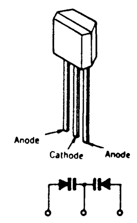
MV104V


cathode
anode

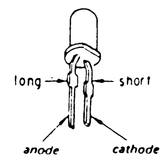
PC817



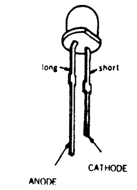
1N4148M


Anode
Cathode
Anode

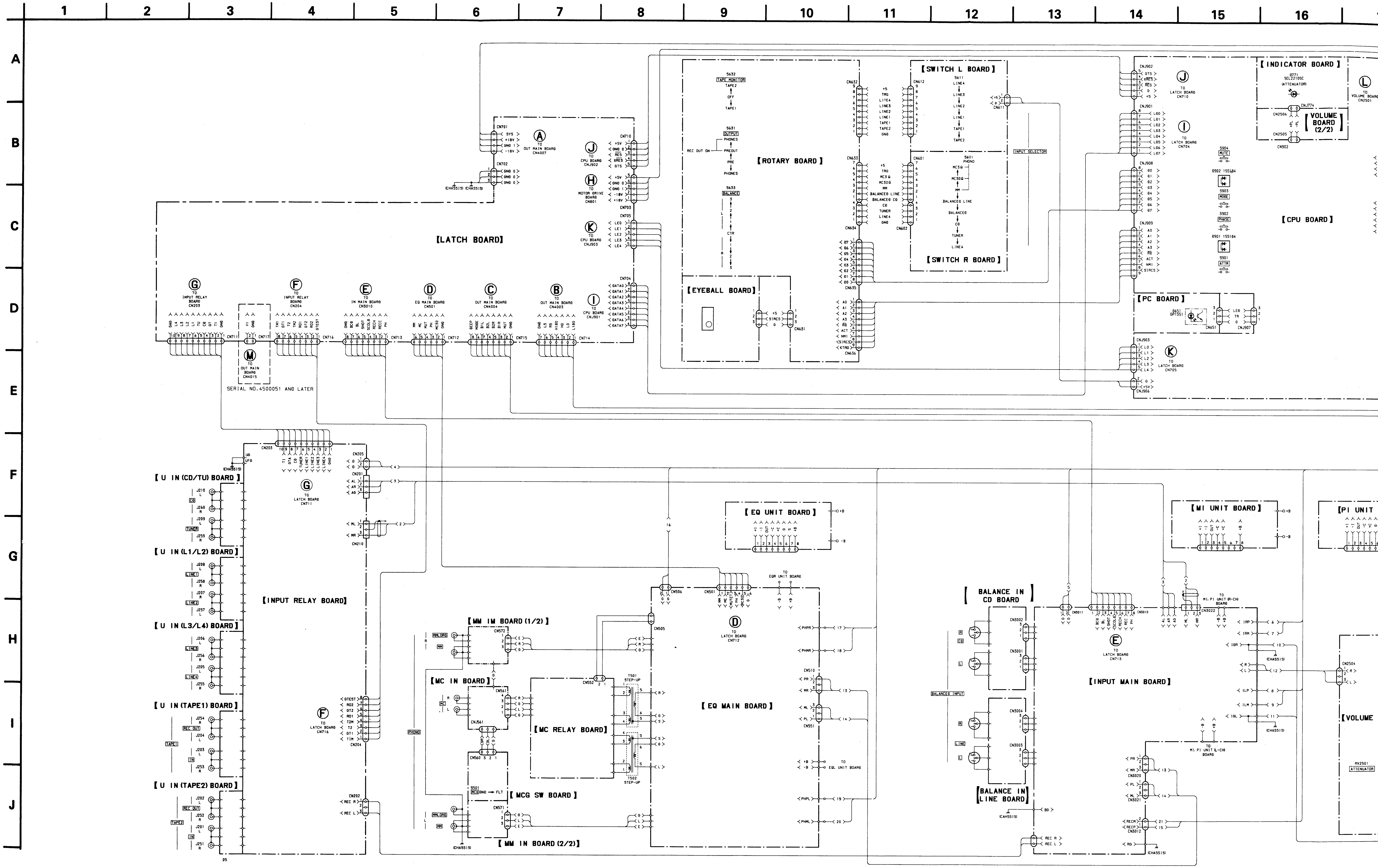
SEL2210S-C
SEL2910D-D


long
short
anode
cathode

SEL2210S-D
SEL2510C-D


long
short
ANODE
CATHODE

3-4. FRAME SCHEMATIC DIAGRAM



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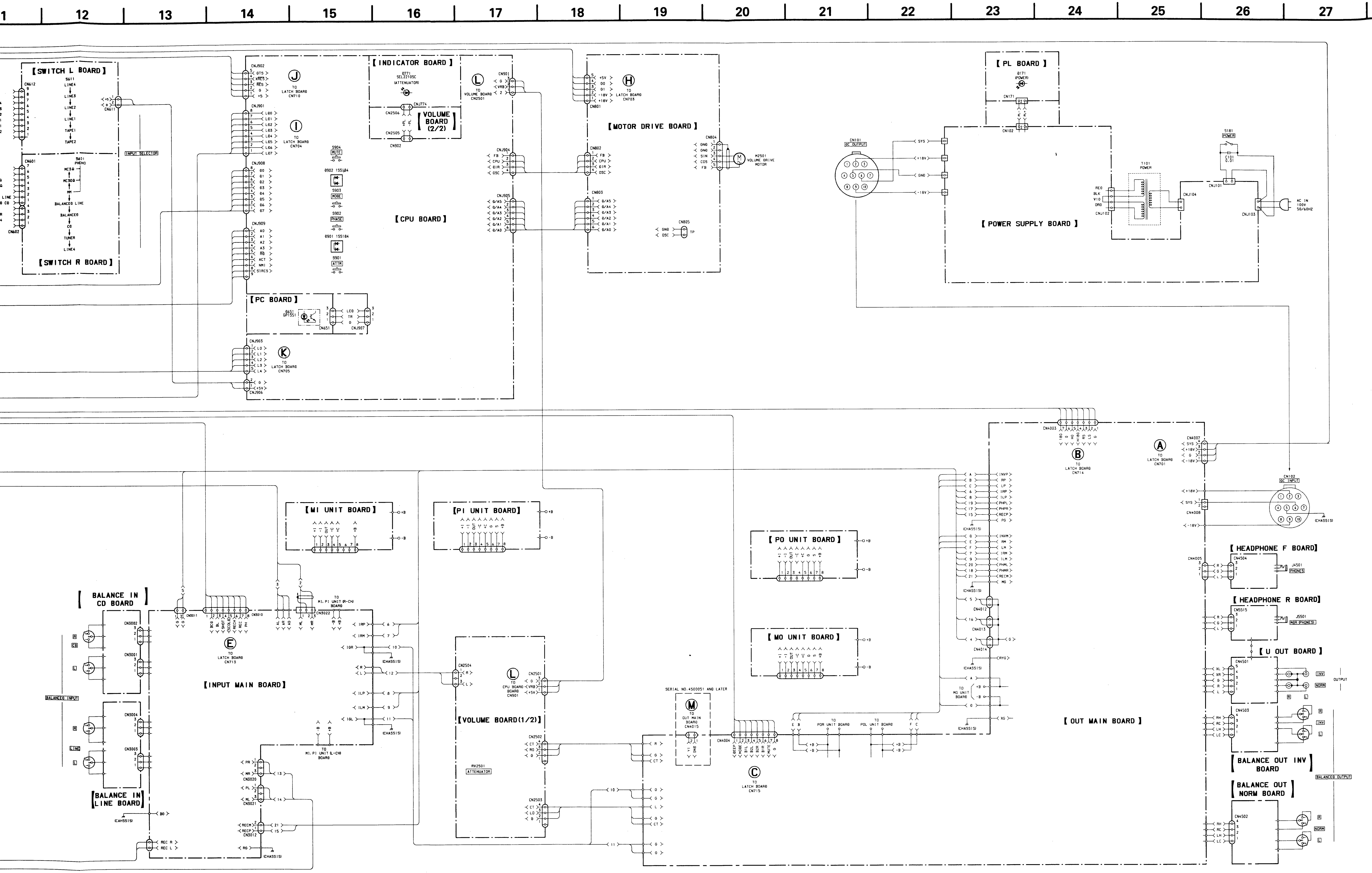
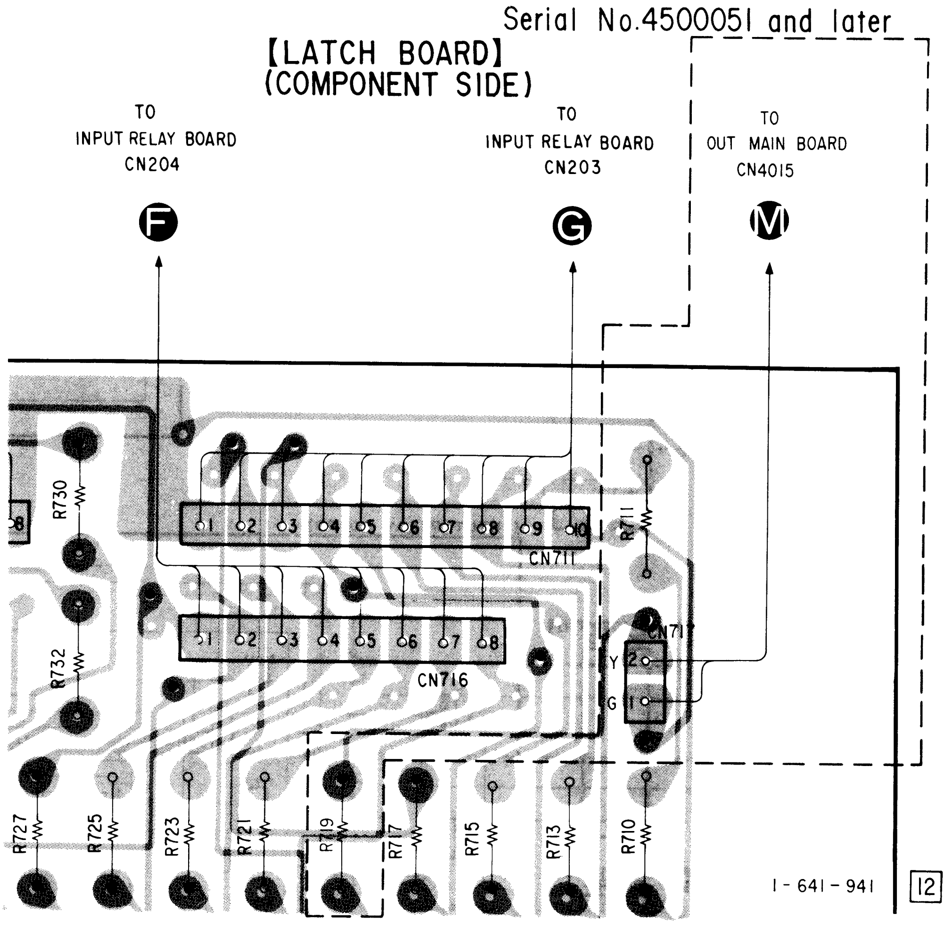
14
15
16
A
B
C
D
E
F
G
H
I
J
[LATCH BOARD]
[ROTARY BOARD]
[SWITCH L BOARD]
[SWITCH R BOARD]
[EYEBALL BOARD]
[INDICATOR BOARD]
[VOLUME BOARD (2/2)]
[CPU BOARD]
[PC BOARD]
INPUT SELECTOR
S632 TAPE MONITOR
S631 OUTPUT
S633 BALANCE
S611
S601 PHONO
S904 MUTE
S903 MODE
S902 PHASE
S901 ATTN
D902 1SS184
D901 1SS184
D771 SEL2210SC (ATTENUATOR)
D651 GP1S51
TO OUT MAIN BOARD CN4007
TO CPU BOARD CNJ902
TO MOTOR DRIVE BOARD CN801
TO CPU BOARD CNJ903
TO CPU BOARD CNJ901
TO LATCH BOARD CN710
TO LATCH BOARD CN704
TO LATCH BOARD CN705
TO VOLUME BOARD CN2501
TO INPUT RELAY BOARD CN203
TO INPUT RELAY BOARD CN204
TO IN MAIN BOARD CN3010
TO EQ MAIN BOARD CN501
TO OUT MAIN BOARD CN4004
TO OUT MAIN BOARD CN4003
TO OUT MAIN BOARD CN4015
SERIAL NO.4500051 AND LATER
[U IN (CD/TU) BOARD]
[U IN (L1/L2) BOARD]
[U IN (L3/L4) BOARD]
[U IN (TAPE1) BOARD]
[U IN (TAPE2) BOARD]
[INPUT RELAY BOARD]
TO LATCH BOARD CN711
TO LATCH BOARD CN716
CD
TUNER
LINE1
LINE2
LINE3
LINE4
TAPE1
TAPE2
REC OUT
IN
PHONO
[MM IN BOARD (1/2)]
[MC IN BOARD]
[MC RELAY BOARD]
[MCG SW BOARD]
[MM IN BOARD (2/2)]
MM LOAD
MM
MC
S501 MCG
T501 STEP-UP
T502 STEP-UP
[EQ UNIT BOARD]
[EQ MAIN BOARD]
TO LATCH BOARD CN712
TO EQA UNIT BOARD
TO EQL UNIT BOARD
[BALANCE IN CD BOARD]
[BALANCE IN LINE BOARD]
BALANCED INPUT
[INPUT MAIN BOARD]
TO LATCH BOARD CN713
[MI UNIT BOARD]
TO MI. PI UNIT (R-CH) BOARD
TO MI. PI UNIT (L-CH) BOARD
[PI UNIT
[VOLUME
RV2501 ATTENUATOR
(CHASSIS)


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
【SWITCH L BOARD】
CN612
S611
LINE4
LINE3
LINE2
LINE1
TAPE1
TAPE2
CN611
INPUT SELECTOR
CN601
S631 PHONO
MC50
MC500
MM
BALANCED LINE
BALANCED
CD
TUNER
LINE4
CN602
【SWITCH R BOARD】
CNJ902
GTS
XRES
RES
G
+5
Ⓙ TO LATCH BOARD CN710
CNJ901
Ⓘ TO LATCH BOARD CN704
CNJ908
CNJ909
ACT
NMI
SIRCS
【INDICATOR BOARD】
D771 SEL2210SC (ATTENUATOR)
CNJ774
CN2506
【VOLUME BOARD (2/2)】
CN2505
CN902
S904 MUTE
D902 1SS184
S903 MODE
S902 PHASE
D901 1SS184
S901 ATTN
【CPU BOARD】
Ⓛ TO VOLUME BOARD CN2501
CN901
VRB
CNJ904
FB
CPU
EIR
OSC
CNJ905
【PC BOARD】
D651 GP1S51
CN651
LED
TR
CNJ907
CNJ903
Ⓚ TO LATCH BOARD CN705
CNJ906
+5V
Ⓗ TO LATCH BOARD CN703
CN801
【MOTOR DRIVE BOARD】
CN802
CN803
CN804
GND
SIN
COS
M2501 VOLUME DRIVE MOTOR
CN805
TP
【PL BOARD】
D171 (POWER)
CN171
CN102
CN101 DC OUTPUT
SYS
+18V
GND
-18V
S101 POWER
C101 0.01
T101 POWER
RED
BLK
VIO
ORG
CNJ102
CNJ104
CNJ101
CNJ103
AC IN 100V 50/60HZ
【POWER SUPPLY BOARD】
CN4003
Ⓑ TO LATCH BOARD CN714
Ⓐ TO LATCH BOARD CN701
CN4007
CN102 DC INPUT
CN4008
(CHASSIS)
【MI UNIT BOARD】
【PI UNIT BOARD】
【PO UNIT BOARD】
【MO UNIT BOARD】
【BALANCE IN CD BOARD】
CN3002
CN3001
BALANCED INPUT
CN3004
CN3003
【BALANCE IN LINE BOARD】
CN3011
CN3010
Ⓔ TO LATCH BOARD CN713
TO MI, PI UNIT (R-CH) BOARD
CN3022
【INPUT MAIN BOARD】
TO MI, PI UNIT (L-CH) BOARD
CN3020
CN3021
CN3012
RECM
RECP
REC R
REC L
(CHASSIS)
CN2504
Ⓛ TO CPU BOARD CN901
CN2501
【VOLUME BOARD(1/2)】
CN2502
RV2501 ATTENUATOR
CN2503
SERIAL NO. 4500051 AND LATER
Ⓜ TO OUT MAIN BOARD CN4015
CN4004
Ⓒ TO LATCH BOARD CN715
TO POR UNIT BOARD
TO POL UNIT BOARD
TO MO UNIT BOARD
CN4012
CN4013
CN4014
【OUT MAIN BOARD】
CN4005
【HEADPHONE F BOARD】
CN4504
J4501 PHONES
【HEADPHONE R BOARD】
CN5515
J5501 MDR(PHONES)
【U OUT BOARD】
CN4501
INV
NORM
OUTPUT
CN4503
【BALANCE OUT INV BOARD】
BALANCED OUTPUT
【BALANCE OUT NORM BOARD】
CN4502

3-5. RELAY DRIVE SECTION PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

- See page 24 for Notes, page 19 for Semiconductor Lead Layouts.


Serial No.4500051 and later
[LATCH BOARD]
(COMPONENT SIDE)
TO
INPUT RELAY BOARD
CN204
F
TO
INPUT RELAY BOARD
CN203
G
TO
OUT MAIN BOARD
CN4015
M
R730
CN711
R711
R732
CN716
CN71
Y 2
G 1
R727
R725
R723
R721
R719
R717
R715
R713
R710
1-641-941
12

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ░ : Pattern of the rear side.
- □ : Chip components extracted from the rear side.

Note on Schematic Diagram:

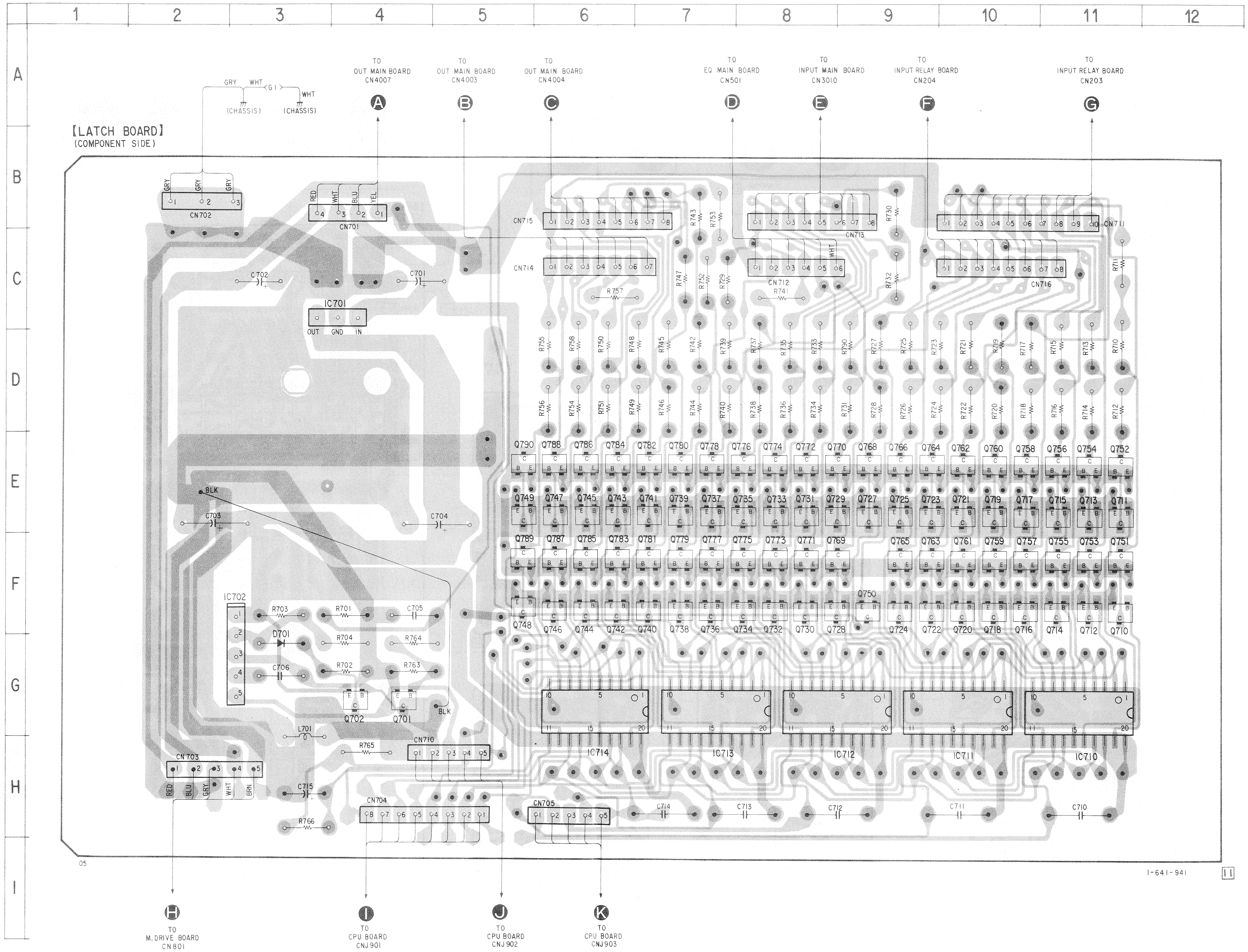
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- % : indicates tolerance.
- −ww∿− : fusible resistor.

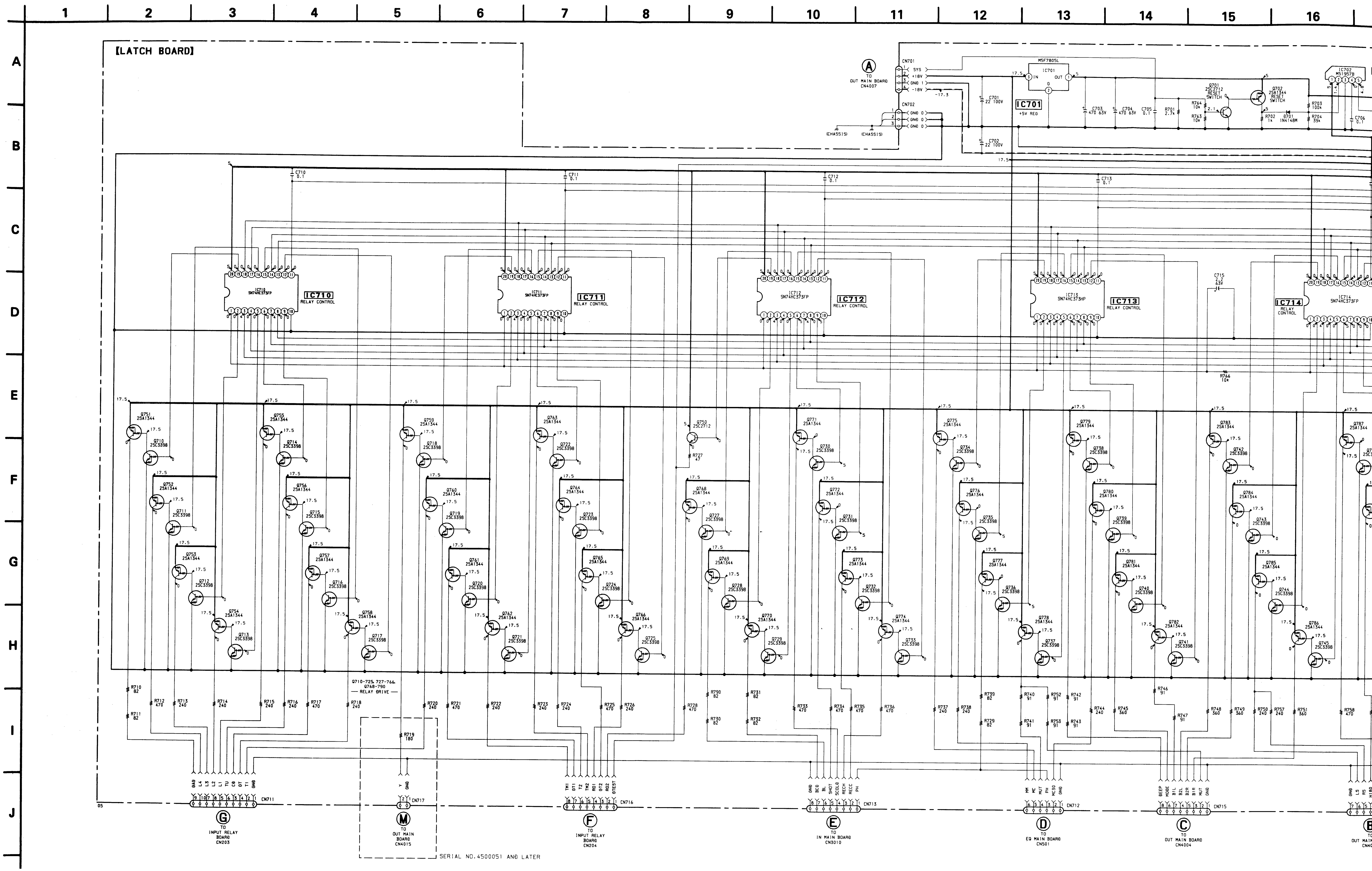
> **Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.

- ━━━ : B + Line.
- ━ ━ ━ : B − Line.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨⟫ : PHONO

- **Semiconductor Location**

Ref. No.	Location
D701	G-3
IC701	C-4
IC702	F-3
IC710	G-11
IC711	G-10
IC712	G-9
IC713	G-7
IC714	G-6
Q128	D-5
Q701	G-4
Q702	G-4
Q710	F-11
Q711	E-11
Q712	F-11
Q713	E-11
Q714	F-11
Q715	E-11
Q716	F-10
Q717	E-10
Q718	F-10
Q719	E-10
Q720	F-10
Q721	E-10
Q722	F-9
Q723	E-9
Q724	F-9
Q725	E-9
Q727	E-9
Q728	F-9
Q729	E-9
Q730	F-8
Q731	E-8
Q732	F-8
Q733	E-8
Q734	F-8
Q735	E-8
Q736	F-7
Q737	E-7
Q738	F-7
Q739	E-7
Q740	F-7
Q741	E-7
Q742	F-6
Q743	E-6
Q744	F-6
Q745	E-6
Q746	F-6
Q747	E-6
Q748	F-5
Q749	E-5
Q750	F-9
Q751	F-11
Q752	E-11
Q753	F-11
Q754	E-11
Q755	F-11
Q756	E-11
Q757	F-10
Q758	E-10
Q759	F-10
Q760	E-10
Q761	F-10
Q762	E-10
Q763	F-9
Q764	E-9
Q765	F-9
Q766	E-9
Q768	E-9
Q769	F-9
Q770	E-9
Q771	F-8
Q772	E-8
Q773	E-8
Q774	E-8
Q775	F-8
Q776	E-8
Q777	F-7
Q778	E-7
Q779	F-7
Q780	E-7
Q781	F-7
Q782	E-7
Q783	F-6
Q784	E-6
Q785	F-6
Q786	E-6
Q787	F-6
Q788	E-6
Q789	F-5
Q790	E-5


【LATCH BOARD】
(COMPONENT SIDE)
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I
TO OUT MAIN BOARD CN4007 Ⓐ
TO OUT MAIN BOARD CN4003 Ⓑ
TO OUT MAIN BOARD CN4004 Ⓒ
TO EQ MAIN BOARD CN501 Ⓓ
TO INPUT MAIN BOARD CN3010 Ⓔ
TO INPUT RELAY BOARD CN204 Ⓕ
TO INPUT RELAY BOARD CN203 Ⓖ
Ⓗ TO M.DRIVE BOARD CN801
Ⓘ TO CPU BOARD CNJ901
Ⓙ TO CPU BOARD CNJ902
Ⓚ TO CPU BOARD CNJ903
GRY WHT G1 WHT (CHASSIS) (CHASSIS)
CN702 GRY GRY GRY
CN701 RED WHT BLU YEL
CN715 CN714 CN713 CN712 CN711 CN716
CN703 RED BLU GRY WHT BRN
CN704 CN705 CN710
IC701 OUT GND IN
IC702 IC710 IC711 IC712 IC713 IC714
C701 C702 C703 C704 C705 C706 C710 C711 C712 C713 C714 C715
D701 L701 Q701 Q702 BLK
R701 R702 R703 R704 R763 R764 R765 R766 R741 R757
1-641-941 11
05


[LATCH BOARD]
1
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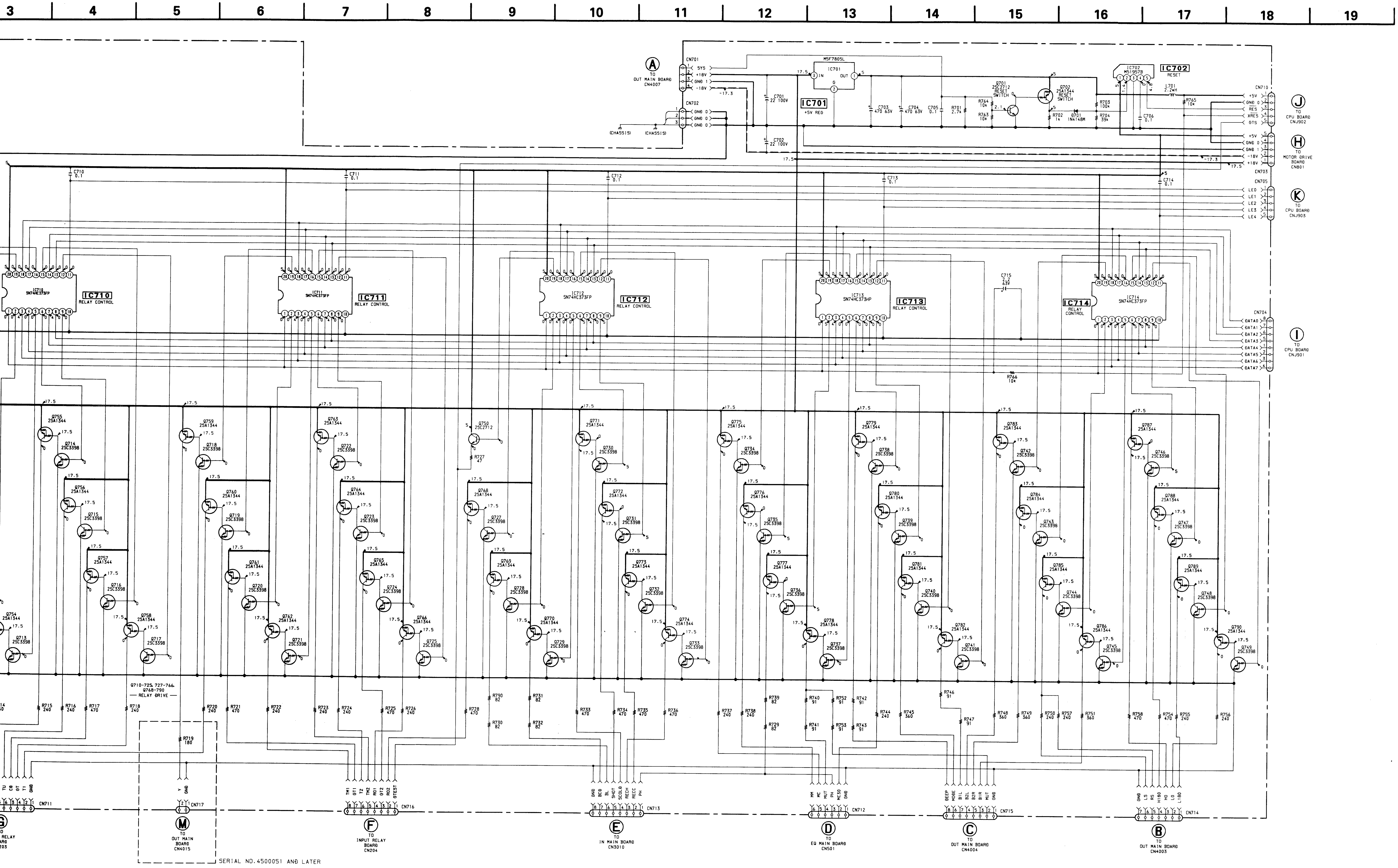
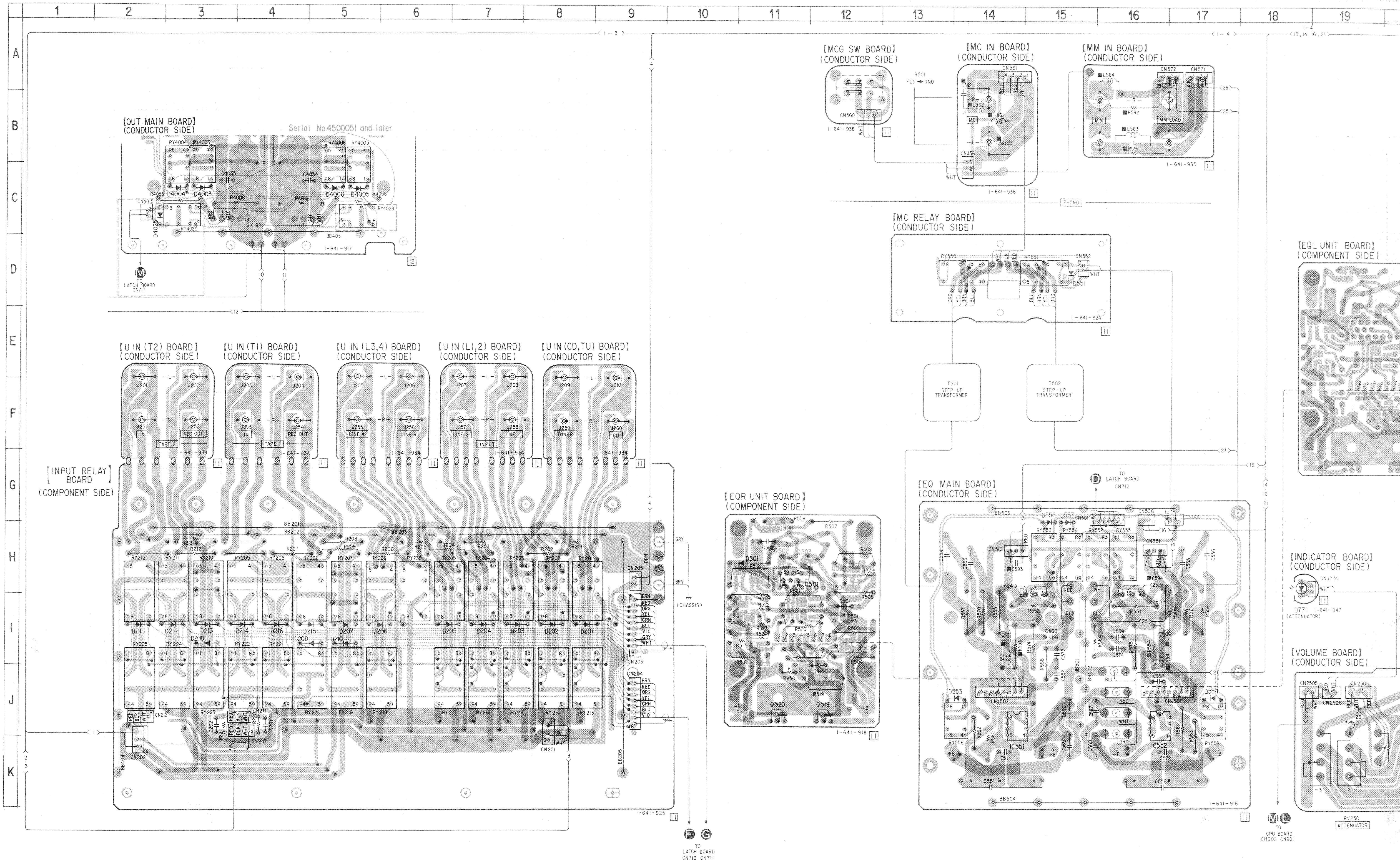
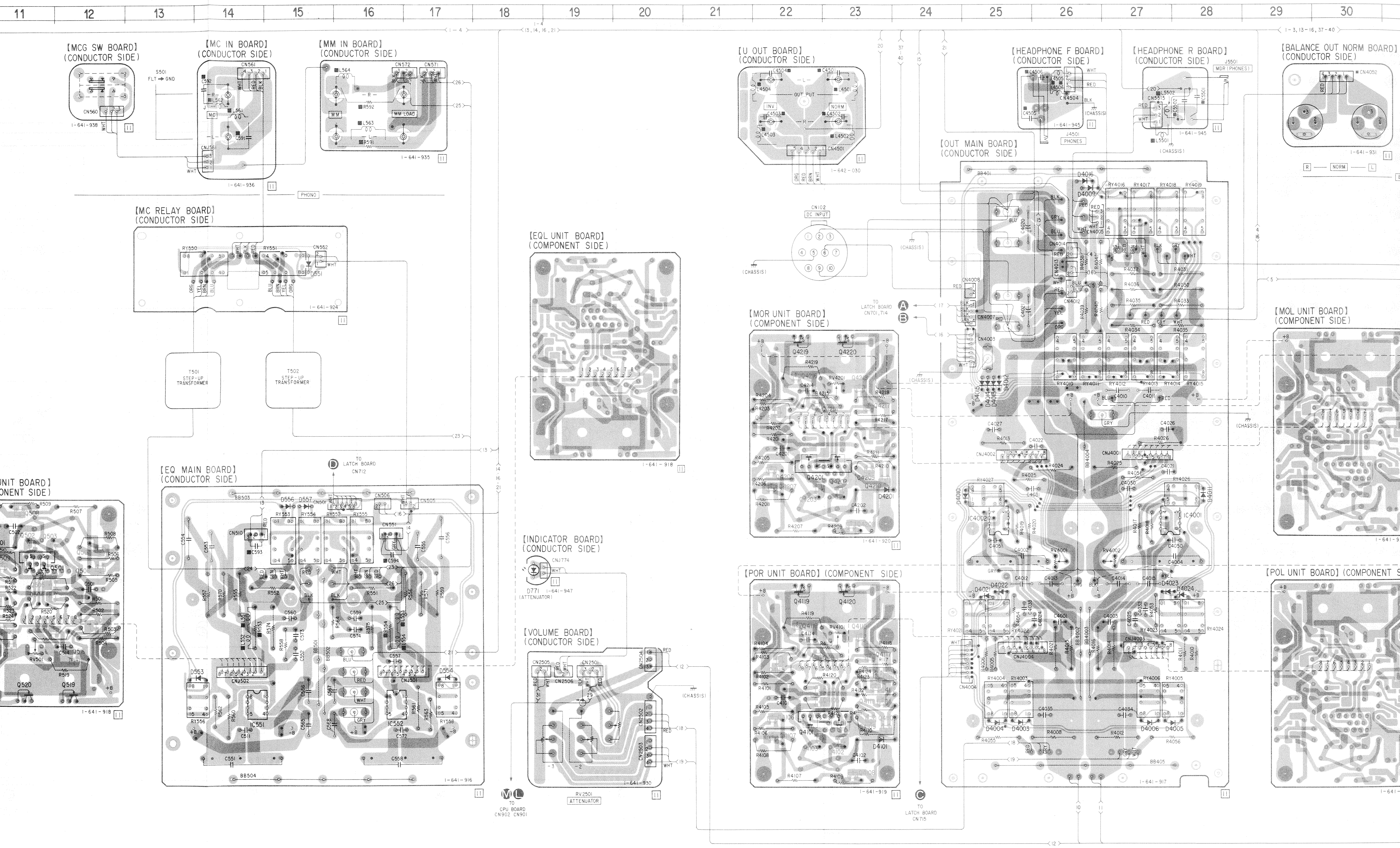
13
14
15
16
A
B
C
D
E
F
G
H
I
J
TO OUT MAIN BOARD CN4007
CN701
SYS
+18V
GND 1
-18V
-17.3
CN702
GND 0
GND 0
GND 0
(CHASSIS)
(CHASSIS)
C701 22 100V
C702 22 100V
M5F7805L
IC701
IN
OUT
G
17.5
5
IC701
+5V REG
C703 470 63V
C704 470 63V
C705 0.1
R701 2.7k
R764 10k
R763 10k
2.1
Q701 2SC2712 RESET SWITCH
Q702 2SA1344 RESET SWITCH
R702 1k
D701 1N4148M
R703 100k
R704 39k
IC702 M51957B
C706 0.1
C710 0.1
C711 0.1
C712 0.1
C713 0.1
C715 2.2 63V
IC710 SN74HC373FP
IC710 RELAY CONTROL
IC711 SN74HC373FP
IC711 RELAY CONTROL
IC712 SN74HC373FP
IC712 RELAY CONTROL
IC713 SN74HC373HP
IC713 RELAY CONTROL
IC714 RELAY CONTROL
IC714 SN74HC373FP
R766 10k
Q751 2SA1344
Q710 2SC3398
Q752 2SA1344
Q711 2SC3398
Q753 2SA1344
Q712 2SC3398
Q754 2SA1344
Q713 2SC3398
Q755 2SA1344
Q714 2SC3398
Q756 2SA1344
Q715 2SC3398
Q757 2SA1344
Q716 2SC3398
Q758 2SA1344
Q717 2SC3398
Q759 2SA1344
Q718 2SC3398
Q760 2SA1344
Q719 2SC3398
Q761 2SA1344
Q720 2SC3398
Q762 2SA1344
Q721 2SC3398
Q763 2SA1344
Q722 2SC3398
Q764 2SA1344
Q723 2SC3398
Q765 2SA1344
Q724 2SC3398
Q766 2SA1344
Q725 2SC3398
Q750 2SC2712
R727 47
Q768 2SA1344
Q727 2SC3398
Q769 2SA1344
Q728 2SC3398
Q770 2SA1344
Q729 2SC3398
Q771 2SA1344
Q730 2SC3398
Q772 2SA1344
Q731 2SC3398
Q773 2SA1344
Q732 2SC3398
Q774 2SA1344
Q733 2SC3398
Q775 2SA1344
Q734 2SC3398
Q776 2SA1344
Q735 2SC3398
Q777 2SA1344
Q736 2SC3398
Q778 2SA1344
Q737 2SC3398
Q779 2SA1344
Q738 2SC3398
Q780 2SA1344
Q739 2SC3398
Q781 2SA1344
Q740 2SC3398
Q782 2SA1344
Q741 2SC3398
Q783 2SA1344
Q742 2SC3398
Q784 2SA1344
Q743 2SC3398
Q785 2SA1344
Q744 2SC3398
Q786 2SA1344
Q745 2SC3398
Q787 2SA1344
Q710-725, 727-766, Q768-790 — RELAY DRIVE —
R710 82
R711 82
R712 470
R713 240
R714 240
R715 240
R716 240
R717 470
R718 240
R719 180
R720 240
R721 470
R722 240
R723 240
R724 240
R725 470
R726 240
R728 470
R790 82
R730 82
R731 82
R732 82
R733 470
R734 470
R735 470
R736 470
R737 240
R738 240
R739 82
R729 82
R740 91
R741 91
R752 91
R753 91
R742 91
R743 91
R744 240
R745 360
R746 91
R747 91
R748 360
R749 360
R750 240
R757 240
R751 360
R758 470
GAG L4 L3 L2 L1 TU CD GT T1 GND
CN711
G TO INPUT RELAY BOARD CN203
Y GND
CN717
M TO OUT MAIN BOARD CN4015
SERIAL NO.4500051 AND LATER
TM1 GT1 T2 TM2 RO1 GT2 RO2 GTEST
CN716
F TO INPUT RELAY BOARD CN204
GND BCD BL SHOT SCOLD RECH RECC PH
CN713
E TO IN MAIN BOARD CN3010
MM MC MUT PH MC30 GND
CN712
D TO EQ MAIN BOARD CN501
DEEP MODE B1L B2L B2R B1R MUT GND
CN715
C TO OUT MAIN BOARD CN4004
GND LS RS H180
B
OUT MAIN

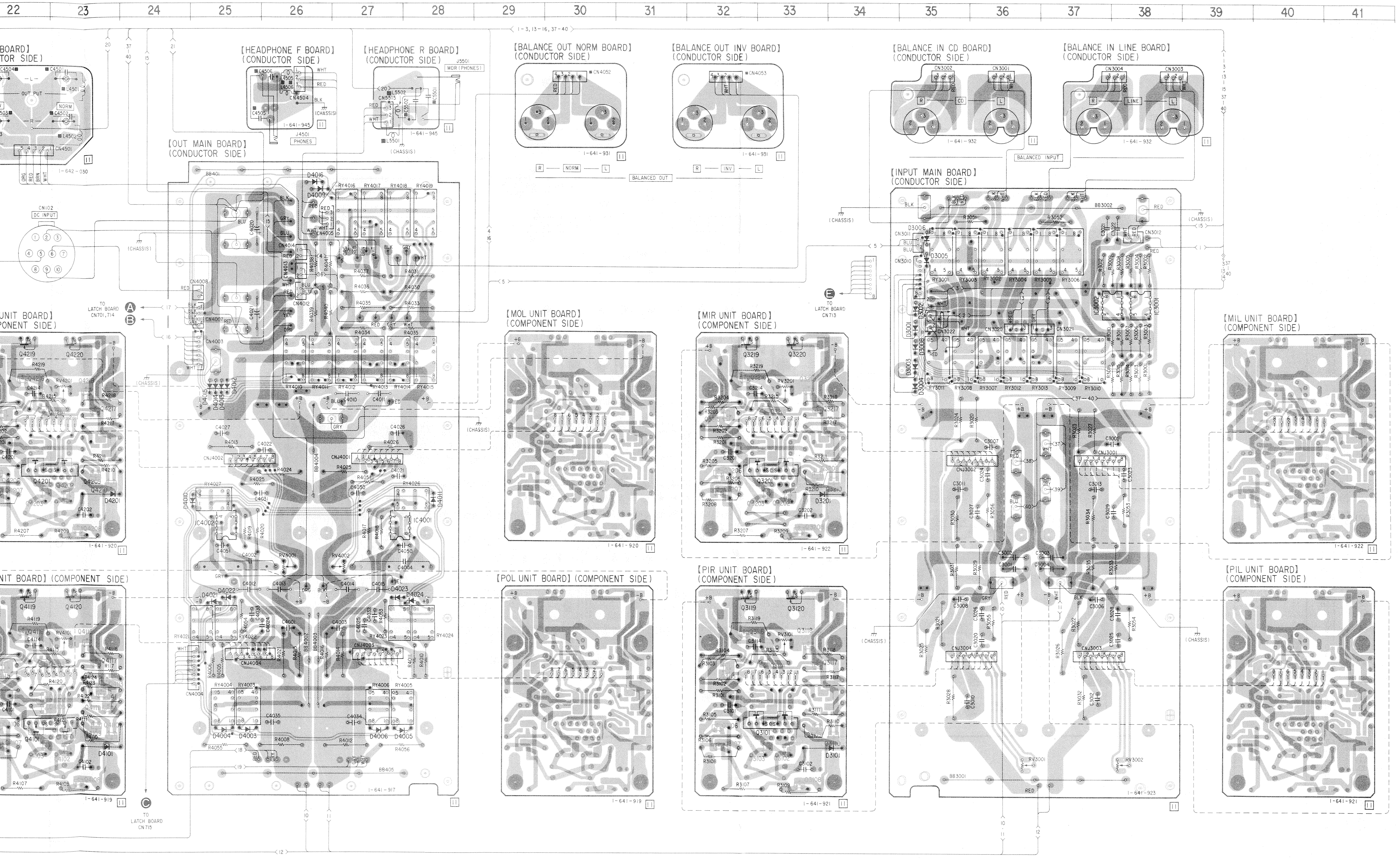

3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Ⓐ TO OUT MAIN BOARD CN4007
CN701
SYS
+18V
GND
-18V
CN702
GND
(CHASSIS)
MSF7805L
IC701
IC701
+5V REG
C701 22 100V
C702 22 100V
C703 470 63V
C704 470 63V
C705 0.1
R701 2.7k
Q701 2SC2712 RESET SWITCH
Q702 2SA1344 RESET SWITCH
R764 10k
R763 10k
R702 1k
D701 1N4148M
R703 100k
R704 39k
IC702 M51957B
IC702
RESET
L701 2.2mH
R765 10k
C706 0.1
CN710
+5V
RES
XRES
GTS
Ⓙ TO CPU BOARD CNJ902
Ⓗ TO MOTOR DRIVE BOARD CN801
CN703
CN705
LE0
LE1
LE2
LE3
LE4
Ⓚ TO CPU BOARD CNJ903
C710 0.1
C711 0.1
C712 0.1
C713 0.1
C714 0.1
C715 2.2 63V
IC710 SN74HC373FP
IC710
RELAY CONTROL
IC711 SN74HC373FP
IC711
RELAY CONTROL
IC712 SN74HC373FP
IC712
RELAY CONTROL
IC713 SN74HC373HP
IC713
RELAY CONTROL
IC714 SN74HC373FP
IC714
RELAY CONTROL
CN704
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
Ⓘ TO CPU BOARD CNJ901
R766 10k
Q750 2SC2712
R727 47
Q710-725, 727-766, Q768-790
— RELAY DRIVE —
2SA1344
2SC3398
17.5
R719 180
CN711
CN717
Ⓜ TO OUT MAIN BOARD CN4015
SERIAL NO.4500051 AND LATER
CN716
TM1
GT1
T2
TM2
RO1
GT2
RO2
GTEST
Ⓕ TO INPUT RELAY BOARD CN204
CN713
GND
BCO
BL
SHOT
SCBLO
RECH
RECC
PH
Ⓔ TO IN MAIN BOARD CN3010
CN712
MM
MC
MUT
PH
MC30
GND
Ⓓ TO EQ MAIN BOARD CN501
CN715
DEEP
MORE
B1L
B2L
B2R
B1R
MUT
GND
Ⓒ TO OUT MAIN BOARD CN4004
CN714
GND
LS
RS
HI80
HO
LO
L180
Ⓑ TO OUT MAIN BOARD CN4003
TU
CO
GT
T
GND
RELAY BOARD 203

3-6. SIGNAL SECTION PRINTED WIRING BOARDS

- See page 24 for Notes, page 19 for Semiconductor Lead Layouts.


[OUT MAIN BOARD]
(CONDUCTOR SIDE)
Serial No.4500051 and later
1-641-917
TO LATCH BOARD CN717
[MCG SW BOARD]
(CONDUCTOR SIDE)
S501 FLT → GND
1-641-938
[MC IN BOARD]
(CONDUCTOR SIDE)
1-641-936
[MM IN BOARD]
(CONDUCTOR SIDE)
1-641-935
PHONO
[MC RELAY BOARD]
(CONDUCTOR SIDE)
1-641-924
T501 STEP-UP TRANSFORMER
T502 STEP-UP TRANSFORMER
[EQL UNIT BOARD]
(COMPONENT SIDE)
[U IN (T2) BOARD]
(CONDUCTOR SIDE)
[U IN (T1) BOARD]
(CONDUCTOR SIDE)
[U IN (L3,4) BOARD]
(CONDUCTOR SIDE)
[U IN (L1,2) BOARD]
(CONDUCTOR SIDE)
[U IN (CD,TU) BOARD]
(CONDUCTOR SIDE)
IN
REC OUT
TAPE 2
TAPE 1
LINE 4
LINE 3
LINE 2
INPUT
LINE 1
TUNER
CD
1-641-934
[INPUT RELAY BOARD]
(COMPONENT SIDE)
(CHASSIS)
1-641-925
TO LATCH BOARD CN716 CN711
[EQR UNIT BOARD]
(COMPONENT SIDE)
1-641-918
[EQ MAIN BOARD]
(CONDUCTOR SIDE)
TO LATCH BOARD CN712
1-641-916
[INDICATOR BOARD]
(CONDUCTOR SIDE)
D771 1-641-947
(ATTENUATOR)
[VOLUME BOARD]
(CONDUCTOR SIDE)
RV2501
ATTENUATOR
TO CPU BOARD CN902 CN901


[MCG SW BOARD] (CONDUCTOR SIDE)
[MC IN BOARD] (CONDUCTOR SIDE)
[MM IN BOARD] (CONDUCTOR SIDE)
[U OUT BOARD] (CONDUCTOR SIDE)
[HEADPHONE F BOARD] (CONDUCTOR SIDE)
[HEADPHONE R BOARD] (CONDUCTOR SIDE)
[BALANCE OUT NORM BOARD] (CONDUCTOR SIDE)
[OUT MAIN BOARD] (CONDUCTOR SIDE)
[MC RELAY BOARD] (CONDUCTOR SIDE)
[EQL UNIT BOARD] (COMPONENT SIDE)
[MOR UNIT BOARD] (COMPONENT SIDE)
[MOL UNIT BOARD] (COMPONENT SIDE)
[EQ MAIN BOARD] (CONDUCTOR SIDE)
[INDICATOR BOARD] (CONDUCTOR SIDE)
[VOLUME BOARD] (CONDUCTOR SIDE)
[POR UNIT BOARD] (COMPONENT SIDE)
[POL UNIT BOARD] (COMPONENT S
UNIT BOARD]
ONENT SIDE)
S501 FLT → GND
PHONO
T501 STEP-UP TRANSFORMER
T502 STEP-UP TRANSFORMER
CN102 DC INPUT
(CHASSIS)
TO LATCH BOARD CN701, 714
TO LATCH BOARD CN712
TO LATCH BOARD CN715
TO CPU BOARD CN902 CN901
D771 1-641-947 (ATTENUATOR)
RV2501 ATTENUATOR
J5501 MDR (PHONES)
J4501 PHONES
NORM
MM LOAD
1-641-938
1-641-936
1-641-935
1-642-030
1-641-945
1-641-931
1-641-924
1-641-918
1-641-916
1-641-930
1-641-920
1-641-919
1-641-917
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30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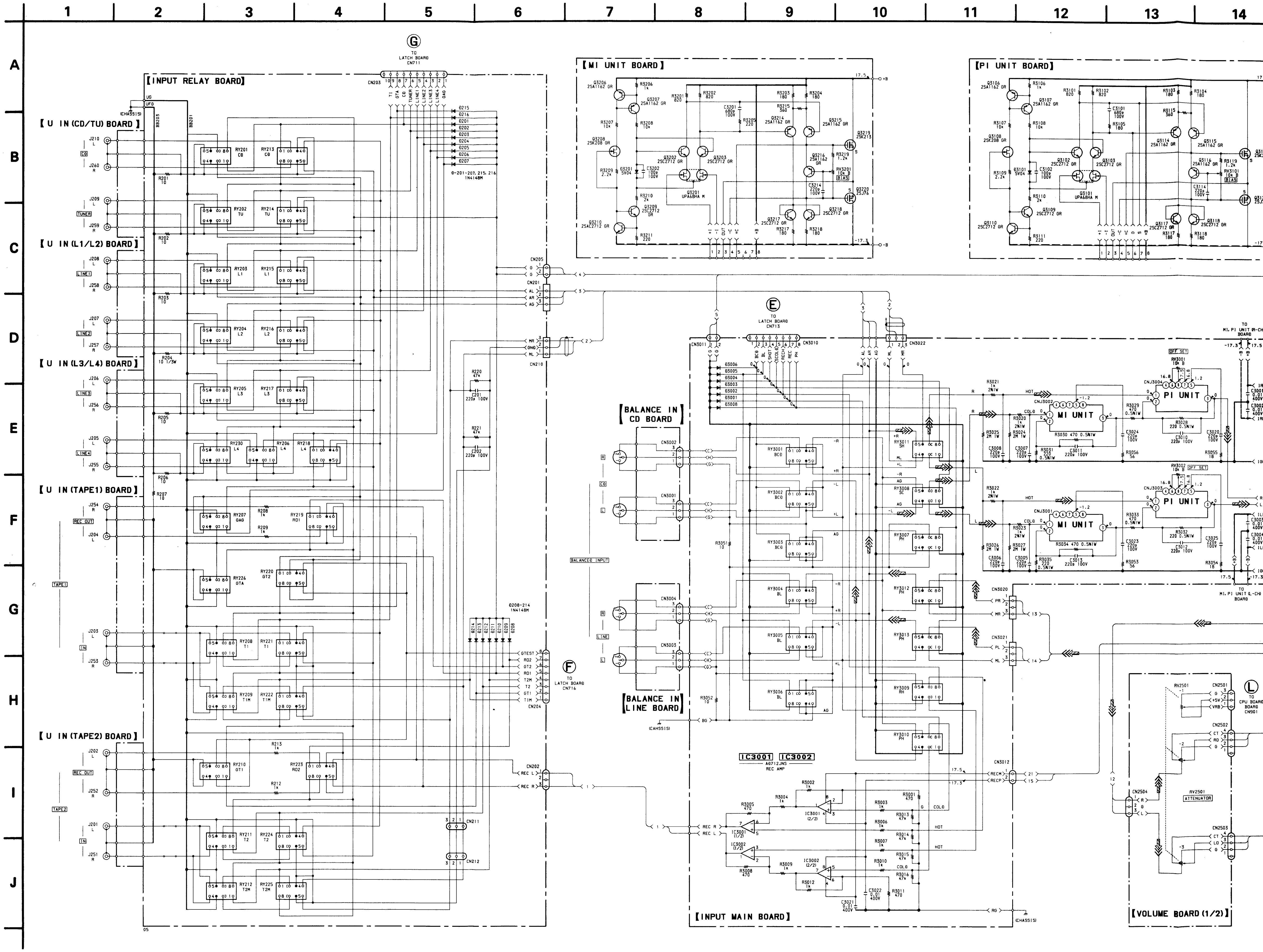
41
1-3, 13-16, 37-40
[HEADPHONE F BOARD]
(CONDUCTOR SIDE)
1-641-945
J4501
PHONES
[HEADPHONE R BOARD]
(CONDUCTOR SIDE)
J5501
MDR (PHONES)
1-641-945
(CHASSIS)
[BALANCE OUT NORM BOARD]
(CONDUCTOR SIDE)
CN4052
1-641-931
R NORM L
[BALANCE OUT INV BOARD]
(CONDUCTOR SIDE)
CN4053
1-641-931
R INV L
BALANCED OUT
[BALANCE IN CD BOARD]
(CONDUCTOR SIDE)
CN3002
CN3001
R CD L
1-641-932
[BALANCE IN LINE BOARD]
(CONDUCTOR SIDE)
CN3004
CN3003
R LINE L
1-641-932
BALANCED INPUT
[OUT MAIN BOARD]
(CONDUCTOR SIDE)
1-641-917
1-642-030
CN4501
CN102
DC INPUT
TO LATCH BOARD CN701, 714
A
B
TO LATCH BOARD CN715
C
[INPUT MAIN BOARD]
(CONDUCTOR SIDE)
1-641-923
TO LATCH BOARD CN713
E
[MOL UNIT BOARD]
(COMPONENT SIDE)
1-641-920
[POL UNIT BOARD] (COMPONENT SIDE)
1-641-919
[MIR UNIT BOARD]
(COMPONENT SIDE)
1-641-922
[PIR UNIT BOARD]
(COMPONENT SIDE)
1-641-921
[MIL UNIT BOARD]
(COMPONENT SIDE)
1-641-922
[PIL UNIT BOARD]
(COMPONENT SIDE)
1-641-921
UNIT BOARD]
(COMPONENT SIDE)
1-641-920
UNIT BOARD] (COMPONENT SIDE)
1-641-919
BOARD]
TOR SIDE)
(CHASSIS)

3-7. SIGNAL SECTION SCHEMATIC DIAGRAM • See page 24 for Notes.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D201	I-8	Q514	I-11
D202	I-8	Q515	I-12
D203	I-7	Q516	J-12
D204	I-7	Q517	I-11
D205	I-6	Q518	I-11
D206	I-6	Q519	J-12
D207	I-5	Q520	J-11
D208	I-3	Q3101	J-33
D209	I-5	Q3102	K-33
D210	I-5	Q3103	K-33
D211	D-2	Q3106	J-32
D212	I-3	Q3107	K-32
D213	I-3	Q3108	K-33
D214	I-4	Q3109	K-33
D215	I-5	Q3110	K-33
D216	I-4	Q3114	J-33
D501	H-11	Q3115	J-32
D551	D-15	Q3116	I-32
D553	J-14	Q3117	J-33
D554	J-17	Q3118	I-33
D556	G-15	Q3119	I-32
D557	G-15	Q3120	I-33
D771	H-18	Q3201	G-33
D3001	E-35	Q3202	G-33
D3002	E-35	Q3203	G-33
D3003	E-35	Q3206	G-32
D3004	F-35	Q3207	G-32
D3005	D-35	Q3208	H-33
D3006	D-35	Q3209	G-33
D3008	E-35	Q3210	F-33
D3101	K-34	Q3214	F-33
D3201	G-33	Q3215	F-32
D4003	K-25	Q3216	F-32
D4004	K-25	Q3217	F-33
D4005	K-28	Q3218	F-33
D4006	K-27	Q3219	E-32
D4009	C-26	Q3220	E-33
D4010	G-25	Q4101	K-22
D4011	G-28	Q4102	K-23
D4012	F-25	Q4103	K-22
D4013	F-25	Q4104	J-22
D4014	F-25	Q4105	J-22
D4015	F-25	Q4106	J-22
D4016	C-26	Q4107	K-22
D4021	I-25	Q4108	K-23
D4022	I-25	Q4109	K-23
D4023	I-27	Q4110	K-23
D4024	I-28	Q4111	J-23
D4025	C-2	Q4112	J-23
D4101	K-23	Q4113	J-23
D4201	G-23	Q4114	J-23
		Q4115	J-22
IC551	J-14	Q4116	I-22
IC552	J-16	Q4117	J-23
IC3001	E-38	Q4118	I-23
IC3002	E-38	Q4119	I-22
IC4001	H-28	Q4120	I-23
IC4002	H-25	Q4201	G-22
		Q4202	G-23
Q501	H-11	Q4203	G-22
Q502	H-11	Q4206	G-22
Q503	H-11	Q4207	G-22
Q504	I-11	Q4208	H-23
Q505	I-11	Q4209	G-23
Q506	H-12	Q4210	G-23
Q507	H-12	Q4214	F-22
Q508	G-11	Q4215	F-22
Q509	H-11	Q4216	F-22
Q510	H-11	Q4217	F-23
Q511	I-11	Q4218	F-23
Q512	I-11	Q4219	E-22
Q513	I-11	Q4220	E-23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A
B
C
D
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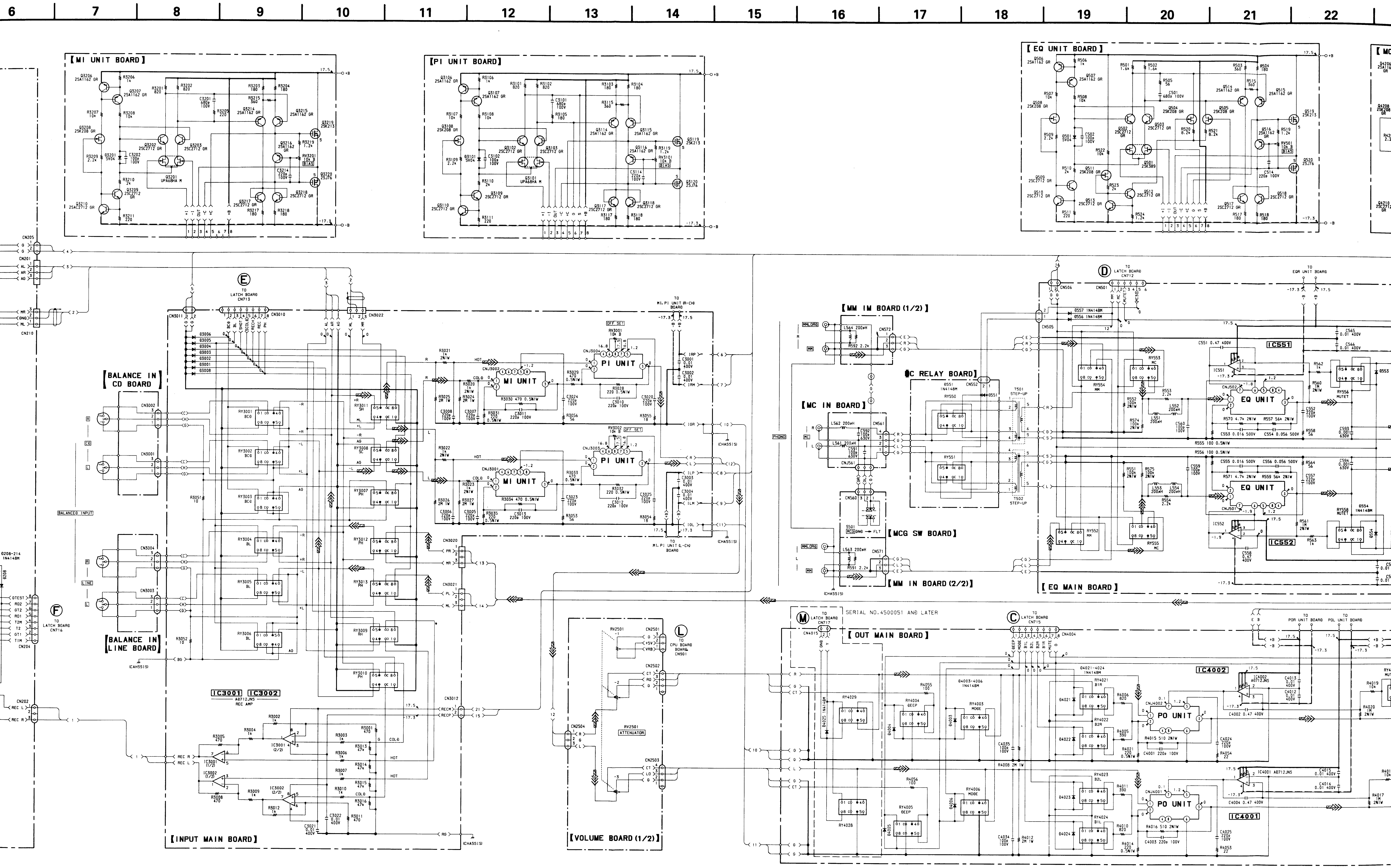
F
G
H
I
J
G
TO LATCH BOARD CN711
[INPUT RELAY BOARD]
[U IN (CD/TU) BOARD]
[U IN (L1/L2) BOARD]
[U IN (L3/L4) BOARD]
[U IN (TAPE1) BOARD]
[U IN (TAPE2) BOARD]
CD
TUNER
LINE1
LINE2
LINE3
LINE4
REC OUT
TAPE1
IN
TAPE2
[MI UNIT BOARD]
[PI UNIT BOARD]
E
TO LATCH BOARD CN713
F
TO LATCH BOARD CN716
[BALANCE IN CD BOARD]
[BALANCE IN LINE BOARD]
BALANCED INPUT
IC3001 IC3002
A6712JNS
REC AMP
[INPUT MAIN BOARD]
PI UNIT
MI UNIT
OFF SET
RV2501 ATTENUATOR
L
TO CPU BOARD CN901
[VOLUME BOARD (1/2)]
TO MI, PI UNIT R-CH BOARD
TO MI, PI UNIT L-CH BOARD
(CHASSIS)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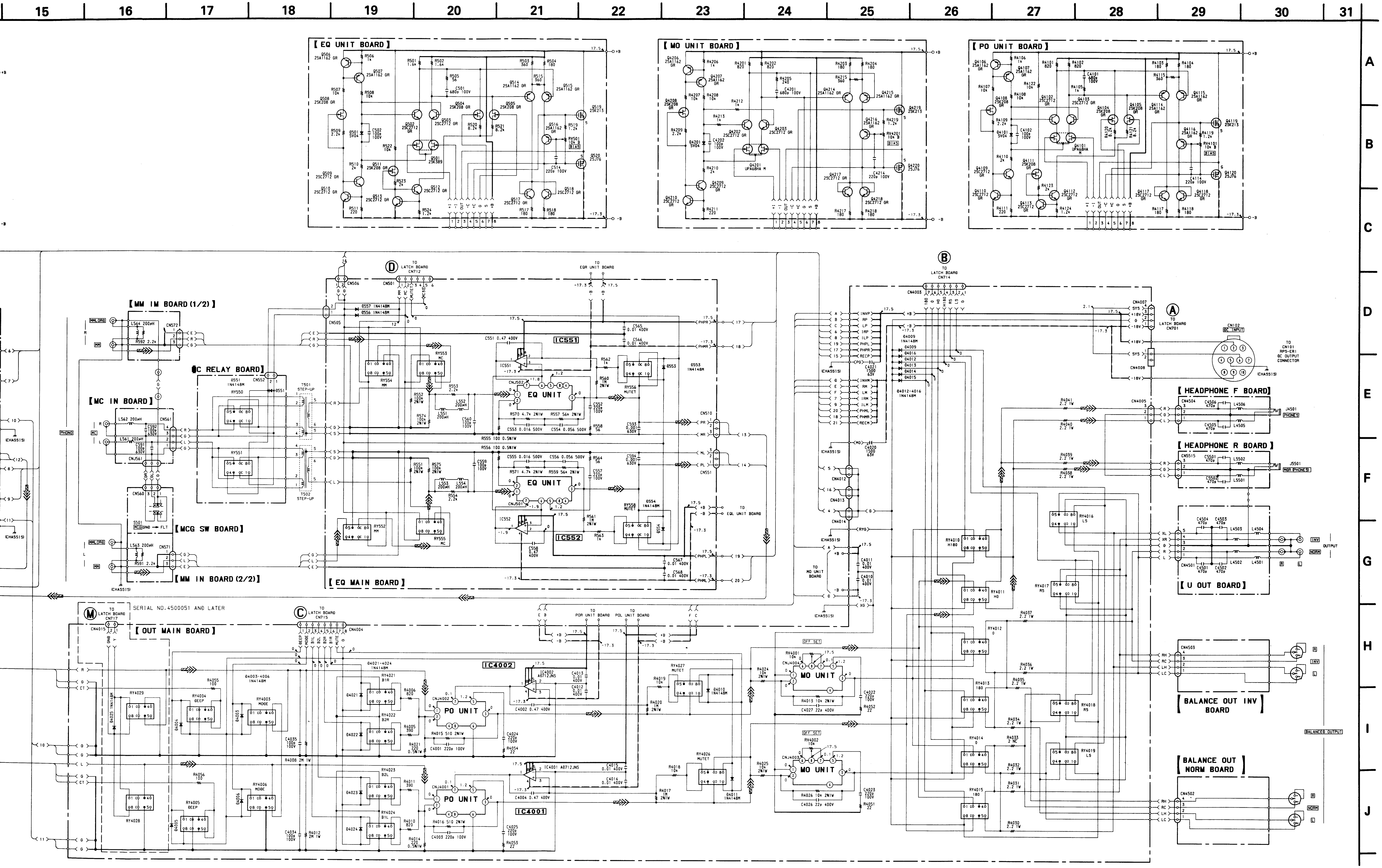
22
【MI UNIT BOARD】
【PI UNIT BOARD】
【EQ UNIT BOARD】
E
TO LATCH BOARD CN713
TO MI, PI UNIT (R-CH) BOARD
TO MI, PI UNIT (L-CH) BOARD
【BALANCE IN CD BOARD】
【BALANCE IN LINE BOARD】
BALANCED INPUT
F
TO LATCH BOARD CN716
MI UNIT
PI UNIT
OFF SET
IC3001 IC3002
A0712JNS REC AMP
【INPUT MAIN BOARD】
L
TO CPU BOARD CN901
RV2501 ATTENUATOR
【VOLUME BOARD (1/2)】
D
TO LATCH BOARD CN712
TO EQR UNIT BOARD
【MM IM BOARD (1/2)】
【MC IN BOARD】
【MC RELAY BOARD】
【MCG SW BOARD】
【MM IN BOARD (2/2)】
PHONO
T501 STEP-UP
T502 STEP-UP
IC551
IC552
EQ UNIT
【EQ MAIN BOARD】
M
TO LATCH BOARD CN717
SERIAL NO. 4500051 AND LATER
【OUT MAIN BOARD】
C
TO LATCH BOARD CN715
IC4002
IC4001
PO UNIT
TO POR UNIT BOARD
TO POL UNIT BOARD
(CHASSIS)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A
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C
D
E
F
G
H
I
J
[EQ UNIT BOARD]
[MO UNIT BOARD]
[PO UNIT BOARD]
[MM IM BOARD (1/2)]
[MC IN BOARD]
[MCG SW BOARD]
[MM IN BOARD (2/2)]
MC RELAY BOARD
[EQ MAIN BOARD]
IC551
IC552
EQ UNIT
EQ UNIT
TO LATCH BOARD CN712
TO EQR UNIT BOARD
TO EQL UNIT BOARD
TO LATCH BOARD CN714
TO LATCH BOARD CN701
TO CN101 RPS-ER1 DC OUTPUT CONNECTOR
CN102 DC INPUT
[HEADPHONE F BOARD]
[HEADPHONE R BOARD]
PHONES
REAR PHONES
[U OUT BOARD]
OUTPUT
INV
NORM
BALANCE OUT INV BOARD
BALANCE OUT NORM BOARD
BALANCED OUTPUT
SERIAL NO.4500051 AND LATER
TO LATCH BOARD CN717
[OUT MAIN BOARD]
TO LATCH BOARD CN715
TO POR UNIT BOARD
TO POL UNIT BOARD
IC4002
IC4001
PO UNIT
PO UNIT
MO UNIT
MO UNIT
OFF SET
TO MO UNIT BOARD
PHONO
MM
MC
(CHASSIS)
T501 STEP-UP
T502 STEP-UP
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Ⓓ
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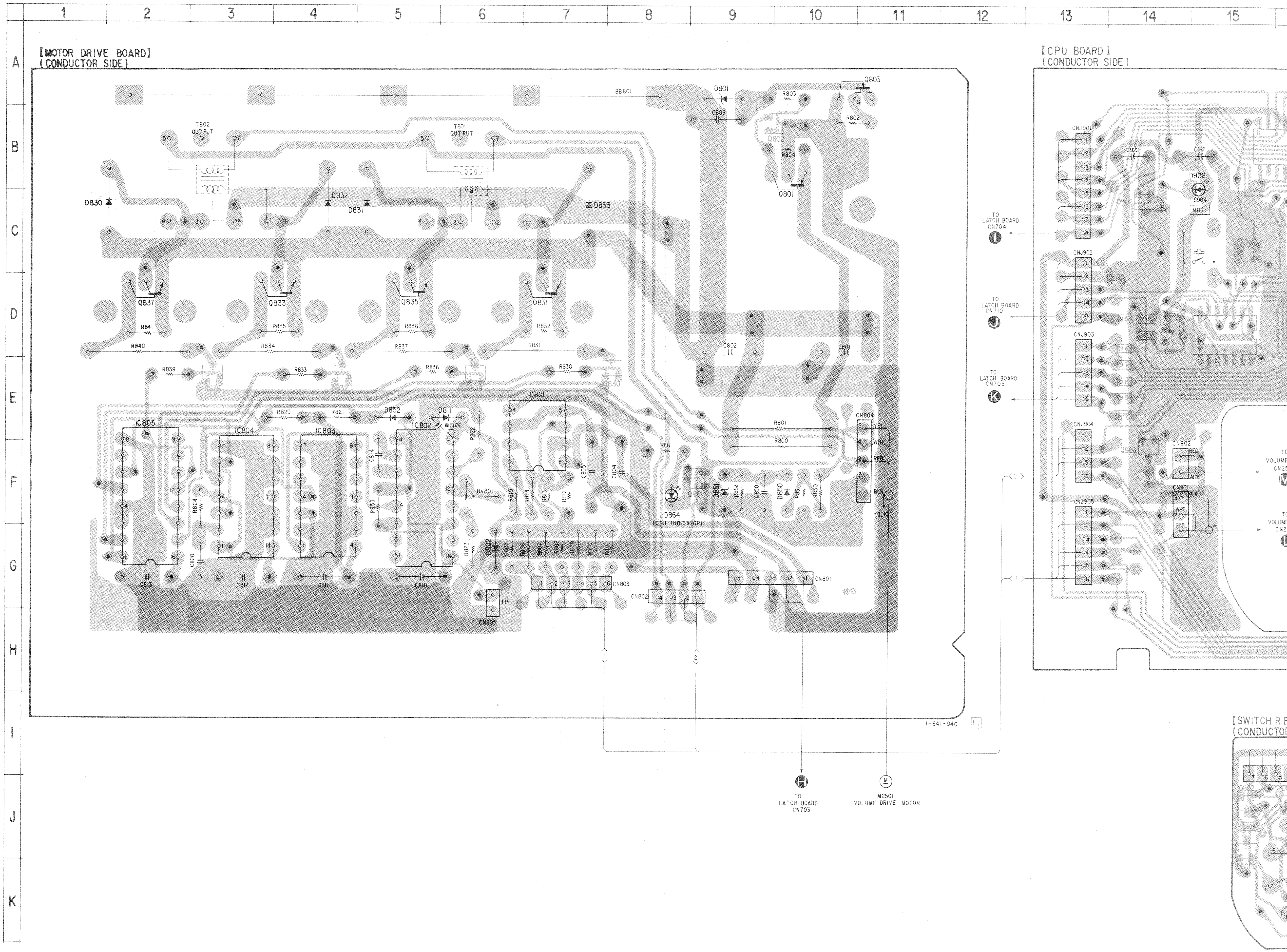
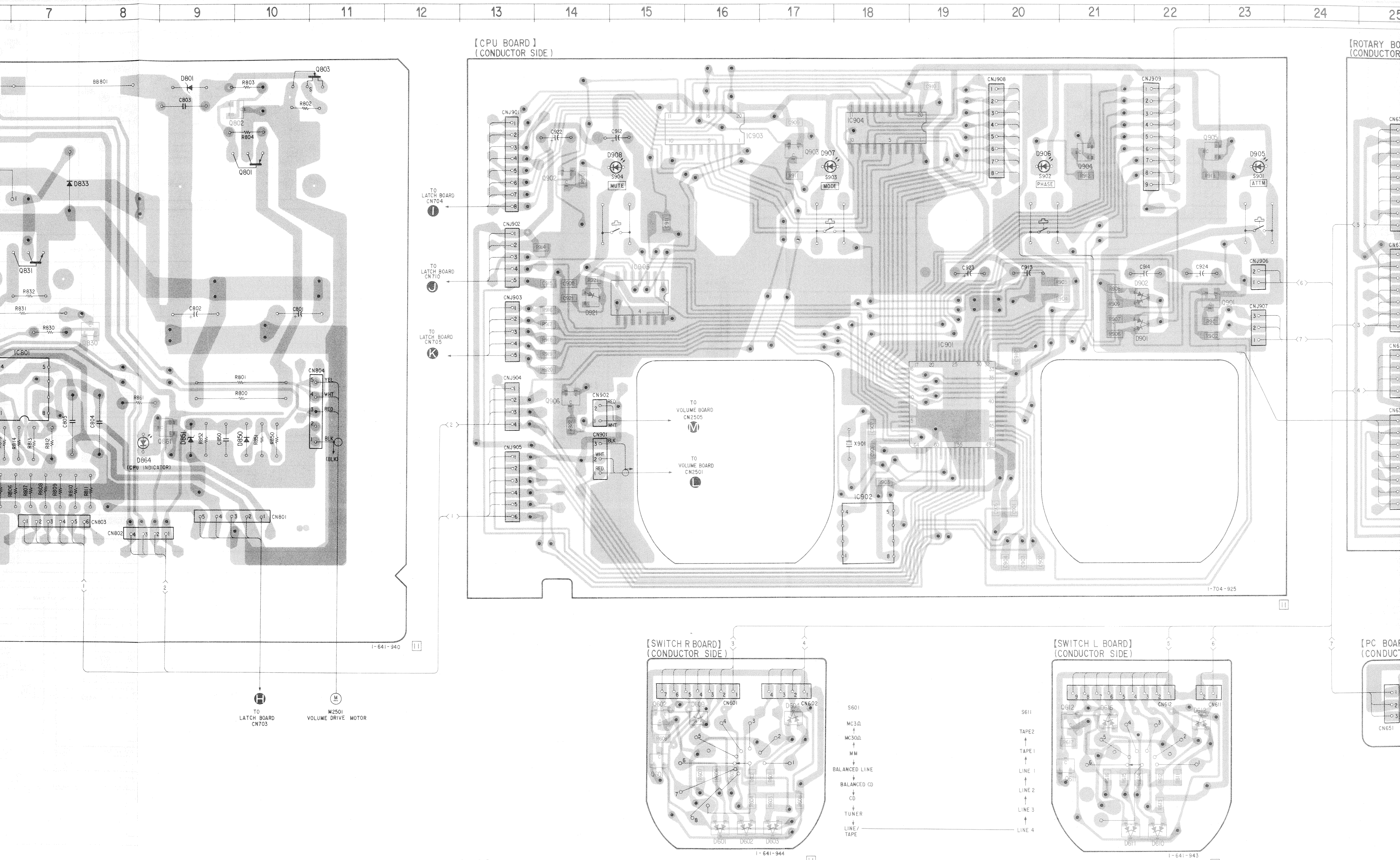
3-8. CONTROL SECTION PRINTED WIRING BOARDS

- See page 24 for Notes, page 19 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D601	K-16	IC633	E-29
D602	K-16	IC634	G-26
D603	K-16	IC635	B-28
D604	J-17	IC636	C-26
D609	J-16	IC637	E-26
D610	K-22	IC801	E-7
D611	K-21	IC802	E-5
D612	J-21	IC803	E-4
D616	J-21	IC804	E-3
D631	B-31	IC805	E-2
D632	D-30	IC901	E-19
D633	D-30	IC902	G-18
D634	D-30	IC903	B-16
D635	B-30	IC904	B-18
D639	G-31	IC905	D-15
D640	G-31		
D642	F-29	Q601	J-15
D643	F-29	Q602	J-15
D645	G-30	Q611	J-21
D646	B-32	Q612	J-21
D647	D-32	Q631	C-29
D651	I-26	Q632	G-31
D801	A-9	Q633	F-30
D802	G-6	Q634	B-29
D811	E-6	Q635	G-31
D830	C-2	Q636	F-30
D831	C-5	Q801	B-10
D832	C-4	Q802	A-10
D833	C-7	Q803	A-11
D850	F-10	Q830	E-8
D851	F-9	Q831	D-7
D852	E-5	Q832	E-4
D861	F-9	Q833	D-4
D864	F-8	Q834	E-6
D901	E-22	Q835	D-5
D902	D-22	Q836	E-3
D905	B-23	Q837	D-2
D906	B-20	Q861	F-9
D907	B-17	Q901	D-23
D908	B-15	Q902	C-14
D921	D-14	Q903	B-17
		Q904	B-21
IC621	K-31	Q905	B-23
IC631	B-32	Q906	F-14
IC632	D-32		


[MOTOR DRIVE BOARD]
(CONDUCTOR SIDE)
[CPU BOARD]
(CONDUCTOR SIDE)
T802 OUT PUT
T801 OUT PUT
IC805
IC804
IC803
IC802
IC801
CN804
CN805
CN803
CN802
CN801
D864 (CPU INDICATOR)
TO LATCH BOARD CN704
TO LATCH BOARD CN710
TO LATCH BOARD CN705
TO LATCH BOARD CN703
M2501 VOLUME DRIVE MOTOR
MUTE
CNJ901
CNJ902
CNJ903
CNJ904
CNJ905
CN902
CN901
1-641-940
[SWITCH R
(CONDUCTOR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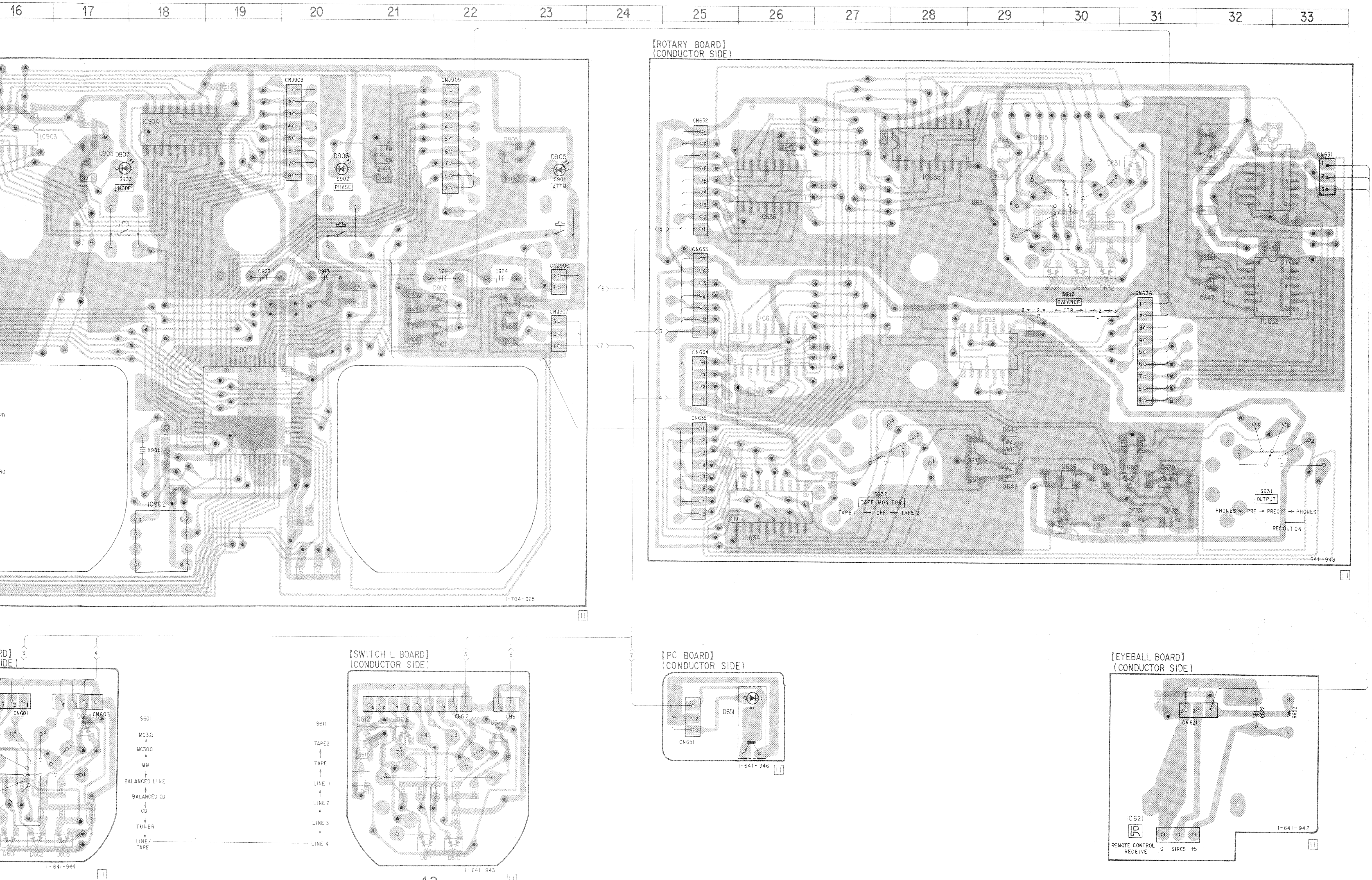
BB801
D801
R803
Q803
C803
R802
Q802
R804
Q801
D833
Q831
R832
R831
R830
IC801
R861
C805
C804
R801
R800
CN804
YEL
WHT
RED
BLK
(BLK)
D864
(CPU INDICATOR)
D851
R852
C850
D850
R851
R850
R814
R813
R812
R806
R807
R808
R809
R810
R811
CN803
CN802
CN801
C802
C801
1-641-940
TO LATCH BOARD CN703
H
M2501 VOLUME DRIVE MOTOR
[CPU BOARD]
(CONDUCTOR SIDE)
CNJ901
CNJ902
CNJ903
CNJ904
CNJ905
CNJ906
CNJ907
CNJ908
CNJ909
TO LATCH BOARD CN704
I
TO LATCH BOARD CN710
J
TO LATCH BOARD CN705
K
C922
C912
D908
S904
MUTE
Q902
IC903
IC904
Q903
D907
S903
MODE
D906
S902
PHASE
Q904
Q905
D905
S901
ATTM
IC905
D921
Q906
CN902
CN901
TO VOLUME BOARD CN2505
M
TO VOLUME BOARD CN2501
L
C923
C913
C914
C924
D902
D901
Q901
IC901
X901
IC902
1-704-925
[ROTARY BO
(CONDUCTOR
[SWITCH R BOARD]
(CONDUCTOR SIDE)
CN601
CN602
D601
D602
D603
1-641-944
S601
MC3Ω
MC30Ω
MM
BALANCED LINE
BALANCED CD
CD
TUNER
LINE/TAPE
[SWITCH L BOARD]
(CONDUCTOR SIDE)
CN612
CN611
D611
D610
1-641-943
S611
TAPE2
TAPE1
LINE 1
LINE 2
LINE 3
LINE 4
[PC BOAR
(CONDUCT
CN651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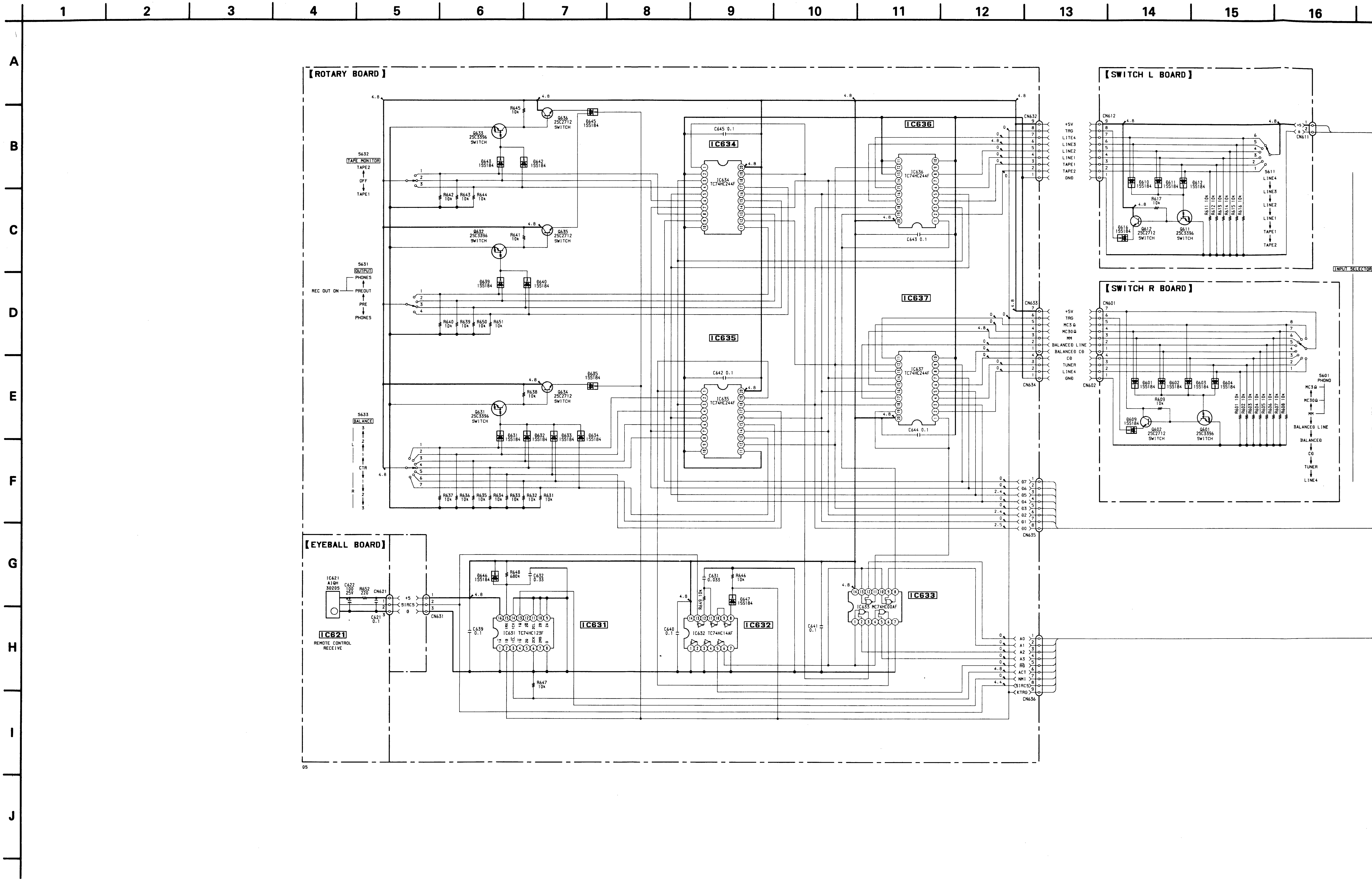
32
33
[ROTARY BOARD]
(CONDUCTOR SIDE)
CNJ908
CNJ909
CNJ906
CNJ907
IC903
IC904
IC901
IC902
X901
D907
S903
MODE
D906
S902
PHASE
D905
S901
ATTM
Q903
Q904
Q905
Q901
D902
D901
C923
C913
C914
C924
1-704-925
CN632
CN633
CN634
CN635
CN636
CN631
IC635
IC636
IC637
IC633
IC634
IC631
IC632
Q631
Q634
Q636
Q633
Q635
Q632
D635
D631
D634
D633
D632
D646
D647
D642
D643
D640
D639
D645
S633
BALANCE
3 ← 2 ← 1 ← CTR → 1 → 2 → 3
R
L
S632
TAPE MONITOR
TAPE 1 ← OFF → TAPE 2
S631
OUTPUT
PHONES ← PRE → PREOUT → PHONES
REC OUT ON
1-641-948
[SWITCH L BOARD]
(CONDUCTOR SIDE)
CN612
CN611
Q612
D616
D612
Q611
D611
D610
1-641-943
S611
TAPE2
TAPE1
LINE 1
LINE 2
LINE 3
LINE 4
S601
MC3Ω
MC30Ω
MM
BALANCED LINE
BALANCED CD
CD
TUNER
LINE/TAPE
CN601
CN602
D601
D602
D603
1-641-944
[PC BOARD]
(CONDUCTOR SIDE)
CN651
D651
1-641-946
[EYEBALL BOARD]
(CONDUCTOR SIDE)
CN621
C622
R652
IC621
REMOTE CONTROL RECEIVE
G
SIRCS
+5
1-641-942

3-9. CONTROL SECTION SCHEMATIC DIAGRAM • See page 24 for Notes.


ROTARY BOARD
SWITCH L BOARD
SWITCH R BOARD
EYEBALL BOARD
IC634
IC635
IC636
IC637
IC631
IC632
IC633
IC621
REMOTE CONTROL RECEIVE
IC634 TC74HC244F
IC635 TC74HC244F
IC636 TC74HC244F
IC637 TC74HC244F
IC631 TC74HC123F
IC632 TC74HC14AF
IC633 MC74HC00AF
S632 TAPE MONITOR
TAPE2
OFF
TAPE1
S631 OUTPUT
PHONES
PREOUT
PRE
REC OUT ON
S633 BALANCE
CTR
Q633 2SC3396 SWITCH
Q636 2SC2712 SWITCH
Q632 2SC3396 SWITCH
Q635 2SC2712 SWITCH
Q631 2SC3396 SWITCH
Q634 2SC2712 SWITCH
Q612 2SC2712 SWITCH
Q611 2SC3396 SWITCH
Q602 2SC2712 SWITCH
Q601 2SC3396 SWITCH
S611
LINE4
LINE3
LINE2
LINE1
TAPE1
TAPE2
S601 PHONO
MC3Ω
MC30Ω
MM
BALANCED LINE
BALANCED
CD
TUNER
+5V
TRG
LITE4
GND
CN632
CN633
CN634
CN635
CN636
CN631
CN621
CN612
CN611
CN601
CN602
D7
D6
D5
D4
D3
D2
D1
D0
A0
A1
A2
A3
RD
ACT
NMI
SIRCS
KTRG
INPUT SELECTOR
A
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I
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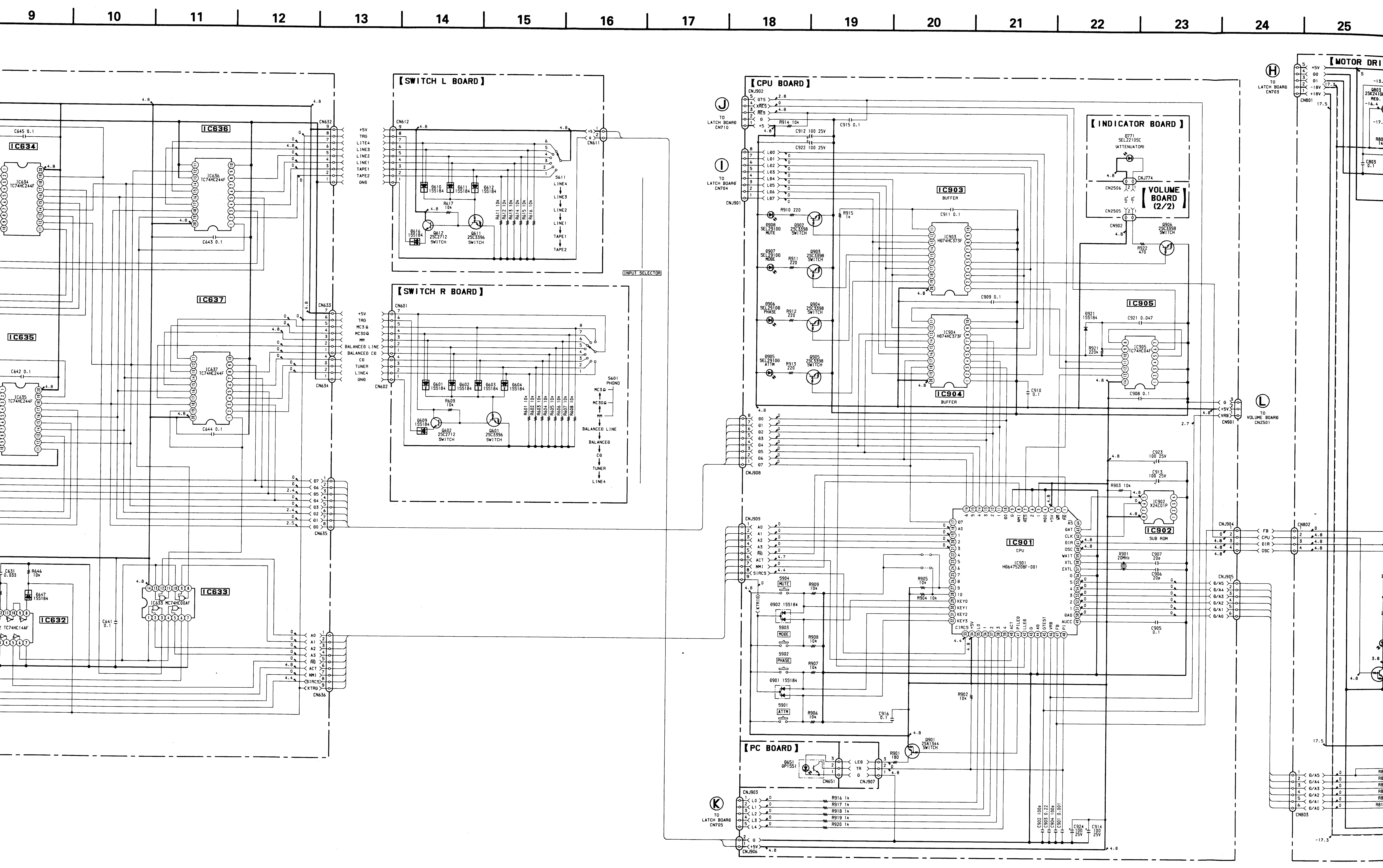
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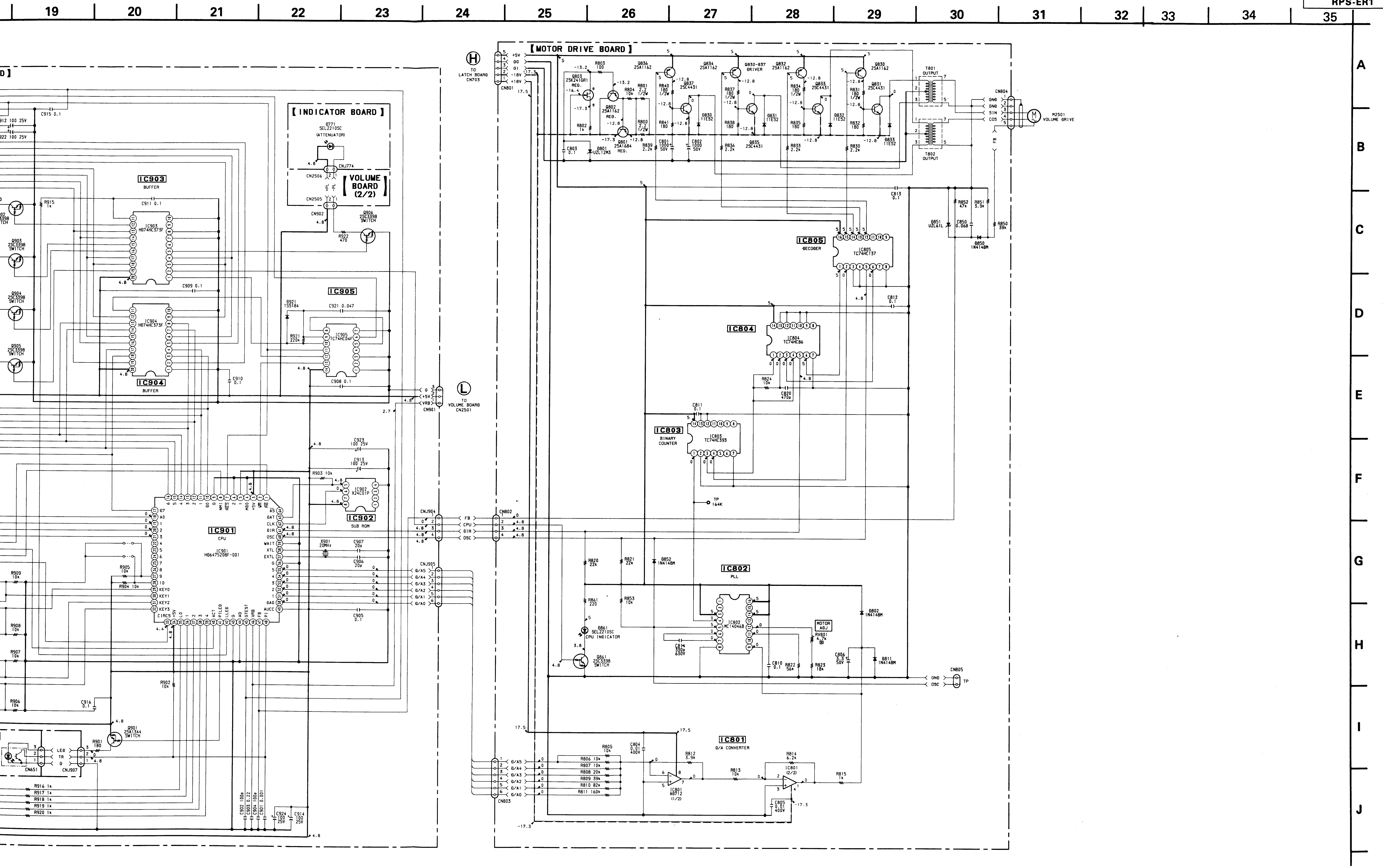
IC634
IC634 TC74HC244F
C645 0.1
IC636
IC636 TC74HC244F
C643 0.1
IC637
IC637 TC74HC244F
C644 0.1
IC635
IC635 TC74HC244F
C642 0.1
IC633
IC633 MC74HC00AF
IC632
TC74HC14AF
C641 0.1
C631 0.033
R646 10k
D647 1SS184
CN632
CN633
CN634
CN635
CN636
+5V
TRG
LITE4
LINE3
LINE2
LINE1
TAPE1
TAPE2
GND
MC3Ω
MC30Ω
MM
BALANCED LINE
BALANCED CD
CD
TUNER
LINE4
D7
D6
D5
D4
D3
D2
D1
D0
A0
A1
A2
A3
RD
ACT
NMI
SIRCS
KTRG
【SWITCH L BOARD】
CN612
CN611
D610 1SS184
D611 1SS184
D612 1SS184
R617 10k
D616 1SS184
Q612 2SC2712 SWITCH
Q611 2SC3396 SWITCH
R611 10k
R612 10k
R613 10k
R614 10k
R615 10k
R616 10k
S611
LINE4
LINE3
LINE2
LINE1
TAPE1
TAPE2
INPUT SELECTOR
【SWITCH R BOARD】
CN601
CN602
D601 1SS184
D602 1SS184
D603 1SS184
D604 1SS184
R609 10k
D609 1SS184
Q602 2SC2712 SWITCH
Q601 2SC3396 SWITCH
R601 10k
R603 10k
R604 10k
R605 10k
R606 10k
R607 10k
R608 10k
S601 PHONO
MC3Ω
MC30Ω
MM
BALANCED LINE
BALANCED
CD
TUNER
LINE4
【CPU BOARD】
CNJ902
J
TO LATCH BOARD CN710
GTS
XRES
RES
G
+5
R914 10k
C912 100 25V
C922 100 25V
C915 0.1
I
TO LATCH BOARD CN704
CNJ901
LO0
LO1
LO2
LO3
LO4
LO5
LO6
LO7
R910 220
R915 1k
D908 SEL2910D MUTE
Q902 2SC3398 SWITCH
D907 SEL2910D MODE
R911 220
Q903 2SC3398 SWITCH
D906 SEL2910D PHASE
R912 220
Q904 2SC3398 SWITCH
D905 SEL2910D ATTM
R913 220
Q905 2SC3398 SWITCH
IC903
BUFFER
C911 0.1
IC903 HD74HC373F
C909 0.1
IC904 HD74HC373F
IC904
BUFFER
C910 0.1
【INDICATOR BOARD】
D771 SEL2210SC (ATTENUATOR)
CNJ774
CN2506
CN2505
CN902
【VOLUME BOARD (2/2)】
Q906 2SC3398 SWITCH
R922 470
IC905
D921 1SS184
C921 0.047
R921 220k
IC905 TC74HC04F
C908 0.1
G
+5V
VRB
CN901
L
TO VOLUME BOARD CN2501
CNJ908
C923 100 25V
C913 100 25V
R903 10k
IC902 X24C01P
IC902
SUB ROM
CNJ909
IC901
CPU
IC901 HD6475208F-001
X901 20MHz
C907 20p
C906 20p
C905 0.1
CNJ904
FB
CPU
DIR
DSC
CNJ905
B/A5
B/A4
B/A3
B/A2
B/A1
B/A0
S904 MUTE
R909 10k
R905 10k
R904 10k
D902 1SS184
S903 MODE
R908 10k
S902 PHASE
R907 10k
D901 1SS184
S901 ATTM
R906 10k
R902 10k
C916 0.1
Q901 2SA1344 SWITCH
R901 180
【PC BOARD】
Q651 GP1S51
CN651
LED
TR
CNJ907
K
TO LATCH BOARD CN705
CNJ903
R916 1k
R917 1k
R918 1k
R919 1k
R920 1k
C902 100p
C903 0.22
C904 100p
C901 0.001
C924 100 25V
C914 100 25V
CNJ906
H
TO LATCH BOARD CN703
CN801
【MOTOR DRI
Q803 2SK2410
C803 0.1
CN802
CN803


19
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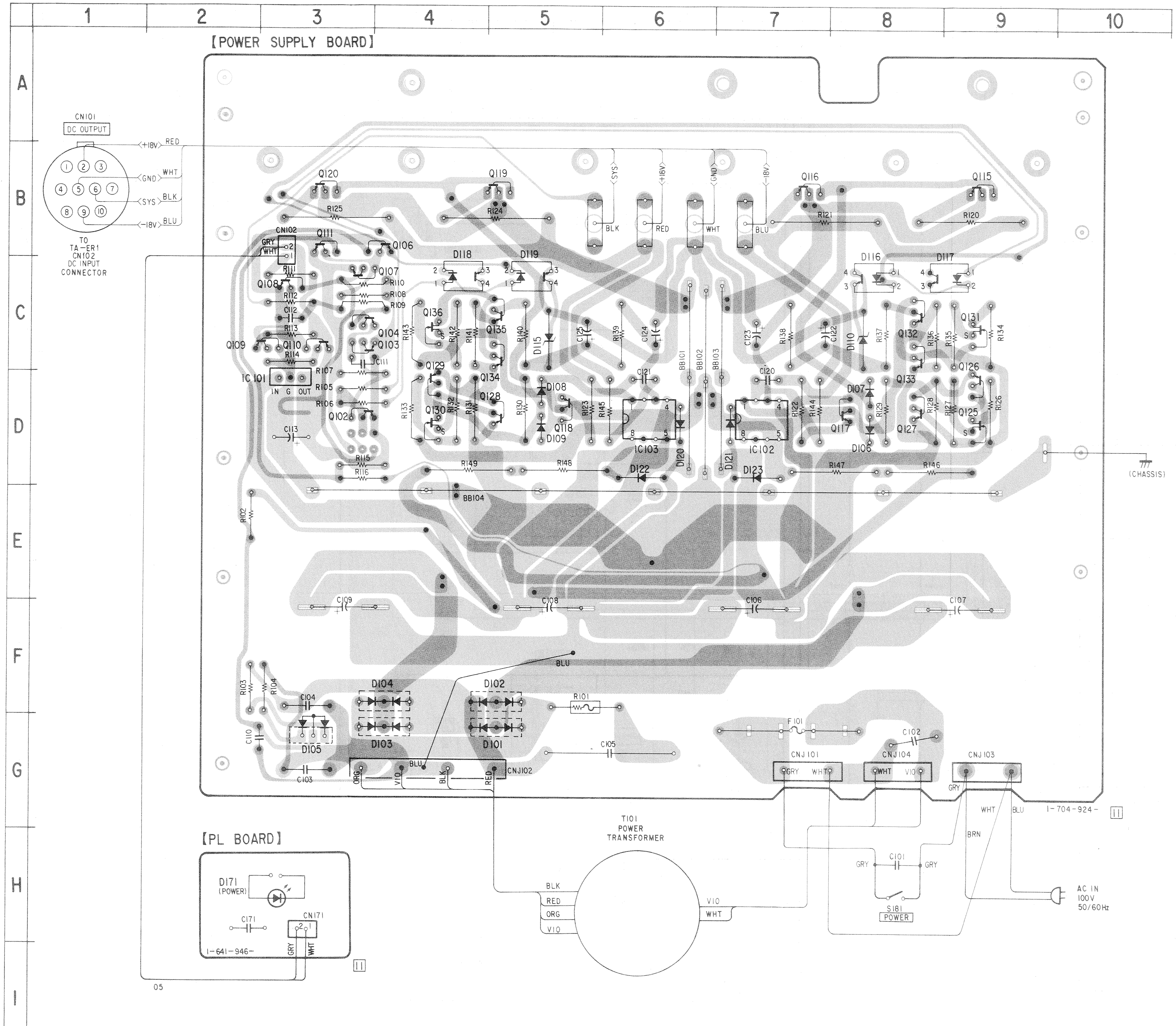
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
【 INDICATOR BOARD 】
D771 SEL2210SC (ATTENUATOR)
CNJ774
CN2506
CN2505
【 VOLUME BOARD (2/2) 】
CN902
Q906 2SC3398 SWITCH
R922 470
IC903 BUFFER
IC903 HD74HC373F
IC904 HD74HC373F
IC904 BUFFER
Q903 2SC3398 SWITCH
Q904 2SC3398 SWITCH
Q905 2SC3398 SWITCH
C915 0.1
C911 0.1
C909 0.1
C910 0.1
IC905
IC905 TC74HC04F
C921 0.047
D921 1SS184
R921 220k
C908 0.1
CN901
TO VOLUME BOARD CN2501
C923 100 25V
C913 100 25V
R903 10k
IC902 X24C01P
IC902 SUB ROM
IC901 CPU
IC901 HD6475208F-001
X901 20MHz
C907 20p
C906 20p
C905 0.1
R905 10k
R904 10k
R909 10k
R908 10k
R907 10k
R906 10k
R902 10k
C916 0.1
Q901 2SA1344 SWITCH
R901 180
CN651
CNJ907
R916 1k
R917 1k
R918 1k
R919 1k
R920 1k
C902 100p
C903 0.22
C904 100p
C901 0.001
C924 100 25V
C914 100 25V
CNJ904
CNJ905
FB
CPU
DIR
OSC
D/A5
D/A4
D/A3
D/A2
D/A1
D/A0
TO LATCH BOARD CN703
CN801
【 MOTOR DRIVE BOARD 】
Q803 2SK2410R1 REG.
Q802 2SA1162 REG.
Q801 2SA1684 REG.
D801 UZL12M3
C803 0.1
R803 100
R804 10k
R802 1k
R801 2.2 1/2W
R800 2.2 1/2W
R839 2.2k
Q836 2SA1162
Q837 2SC4431
Q834 2SA1162
Q830-837 DRIVER
Q832 2SA1162
Q833 2SC4431
Q830 2SA1162
Q831 2SC4431
Q835 2SC4431
D830 11ES2
D831 11ES2
D832 11ES2
D833 11ES2
C801 1000 50V
C802 1000 50V
R836 2.2k
R833 2.2k
R830 2.2k
T801 OUTPUT
T802 OUTPUT
CN804
M2501 VOLUME DRIVE
GND
SIN
COS
C813 0.1
R852 47k
R851 3.9k
D851 UZL6IL
C850 0.068
R850 39k
D850 1N4148M
IC805 DECODER
IC805 TC74HC137
C812 0.1
IC804
IC804 TC74HC86
R824 10k
C820 470p
C811 0.1
IC803 BINARY COUNTER
IC803 TC74HC393
TP 164K
CN802
R820 22k
R821 22k
D852 1N4148M
IC802 PLL
IC802 MC14046B
R861 220
R853 10k
D861 SEL2210SC CPU INDICATOR
Q861 2SC3398 SWITCH
C814 330p 630V
C810 0.1
R822 56k
MOTOR ADJ
RV801 4.7k
R823 18k
C806 3.3 50V
D802 1N4148M
D811 1N4148M
CN805
OSC
TP
IC801 D/A CONVERTER
R805 10k
C804 0.01 400V
R806 10k
R807 10k
R808 20k
R809 39k
R810 82k
R811 160k
R812 3.9k
IC801 AD712 (1/2)
R813 10k
R814 6.2k
IC801 (2/2)
R815 1k
C805 0.01 400V
CN803
17.5
-17.3

3-10. POWER SUPPLY SECTION PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

- See page 24 for Notes, page 19 for Semiconductor Lead Layouts.

- **Semiconductor Location**

Ref. No.	Location
D101	G-5
D102	F-5
D103	G-4
D104	F-4
D105	G-3
D106	D-8
D107	D-8
D108	D-5
D109	D-5
D110	C-8
D115	C-5
D116	C-8
D117	C-9
D118	C-4
D119	C-5
D120	D-6
D121	D-7
D122	D-6
D123	D-7
D171	H-3
IC101	D-3
IC102	D-7
IC103	D-6
Q102	D-3
Q103	C-3
Q104	C-3
Q106	B-4
Q107	C-3
Q108	C-3
Q109	C-3
Q110	C-3
Q111	B-3
Q115	B-9
Q116	B-7
Q117	D-8
Q118	D-5
Q119	B-5
Q120	B-3
Q125	D-9
Q126	D-9
Q127	D-8
Q128	D-5
Q129	D-4
Q130	D-4
Q131	C-9
Q132	C-8
Q133	C-8
Q134	C-5
Q135	C-5
Q136	C-4


1
2
3
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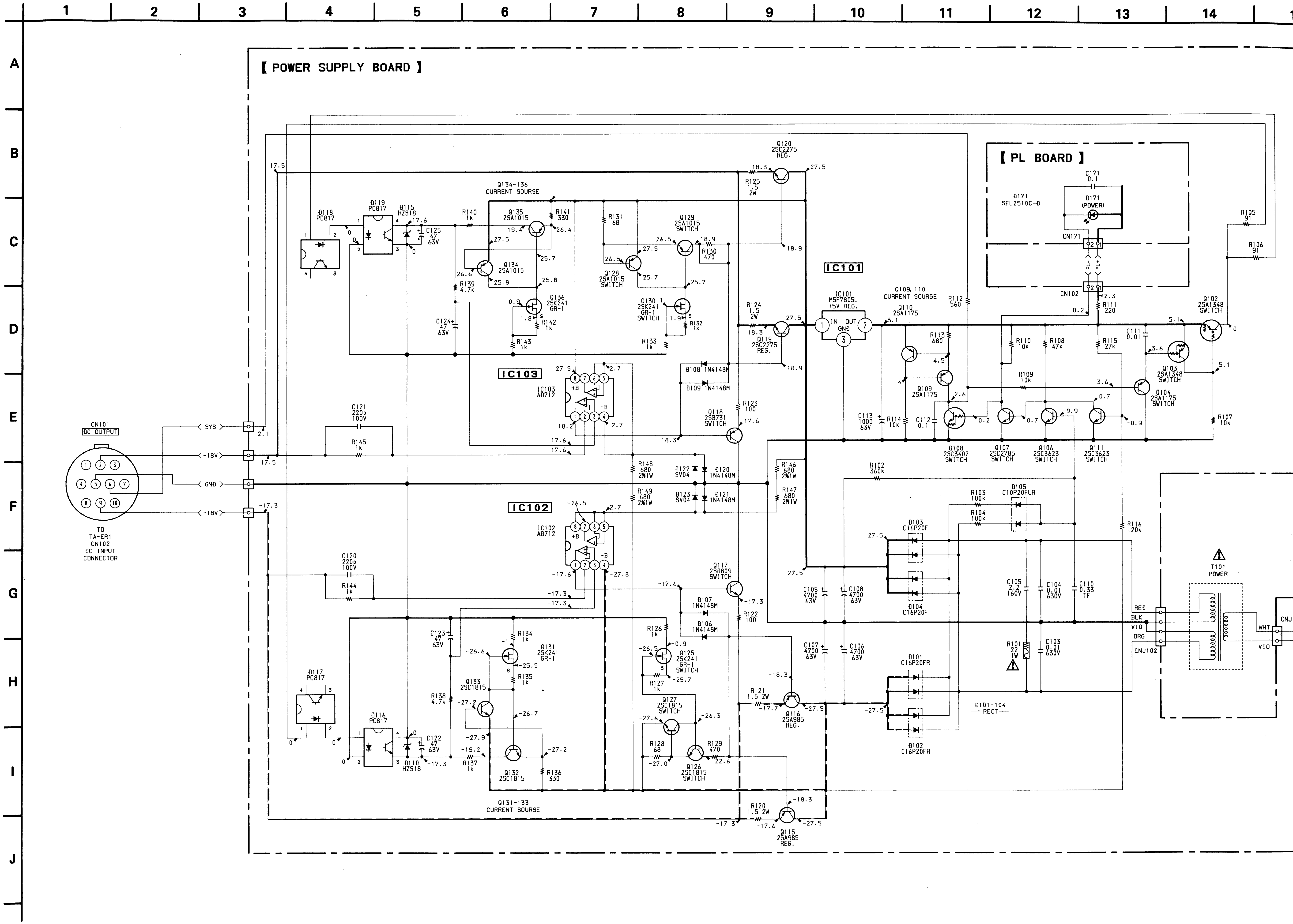
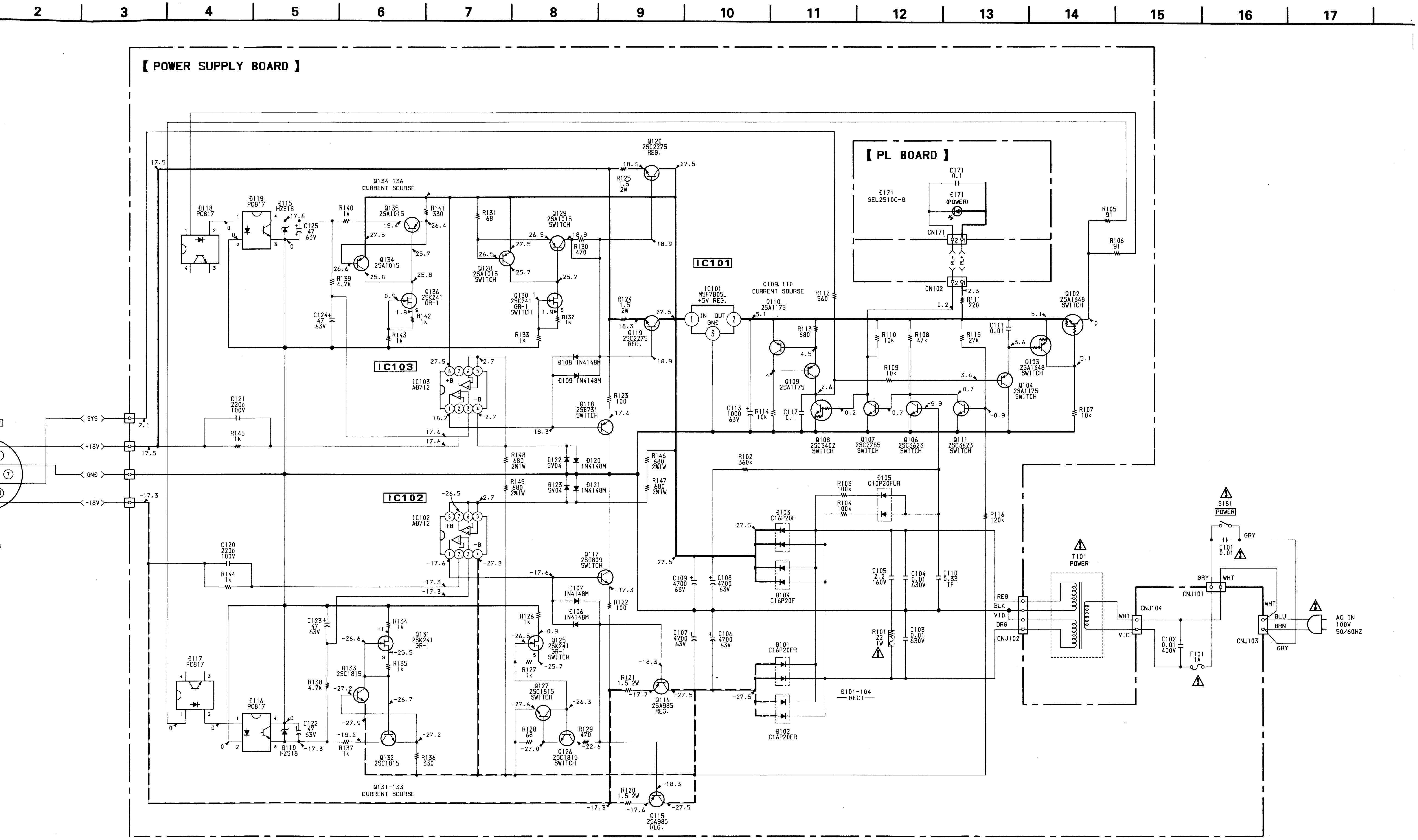
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
【POWER SUPPLY BOARD】
CN101
DC OUTPUT
<+18V> RED
<GND> WHT
<SYS> BLK
<-18V> BLU
TO TA-ER1 CN102 DC INPUT CONNECTOR
CN102
GRY
WHT
Q120
Q119
Q116
Q115
Q111
Q106
Q107
Q108
Q109
Q110
Q104
Q103
Q102
IC101
IN G OUT
D118
D119
D116
D117
Q136
Q135
Q129
Q134
Q130
Q128
D115
D108
Q118
D109
IC103
D120
D122
BB101
BB102
BB103
BB104
D121
D123
IC102
D107
Q117
D106
Q127
Q125
Q126
Q133
Q132
Q131
D110
<SYS>
<+18V>
<GND>
<-18V>
BLK
RED
WHT
BLU
(CHASSIS)
C109
C108
C106
C107
BLU
D104
D102
D103
D101
D105
R101
F101
C102
C105
C103
C104
C110
CNJ102
ORG
V10
BLK
RED
CNJ101
GRY
WHT
CNJ104
WHT
V10
CNJ103
GRY
WHT
BLU
BRN
1-704-924-
11
T101 POWER TRANSFORMER
BLK
RED
ORG
V10
V10
WHT
GRY
C101
GRY
S181 POWER
AC IN 100V 50/60Hz
【PL BOARD】
D171 (POWER)
C171
CN171
GRY
WHT
1-641-946-
11
05


【 POWER SUPPLY BOARD 】
【 PL BOARD 】
CN101
DC OUTPUT
SYS
+18V
GND
-18V
TO
TA-ER1
CN102
DC INPUT
CONNECTOR
Q118 PC817
Q119 PC817
D115 HZS18
C125 47 63V
R140 1k
Q135 2SA1015
R141 330
Q134-136 CURRENT SOURSE
Q134 2SA1015
R139 4.7k
Q136 2SK241 GR-1
R142 1k
R143 1k
C124 47 63V
R131 68
Q129 2SA1015 SWITCH
R130 470
Q128 2SA1015 SWITCH
Q130 2SK241 GR-1 SWITCH
R132 1k
R133 1k
Q120 2SC2275 REG.
R125 1.5 2W
R124 1.5 2W
Q119 2SC2275 REG.
IC101
IC101 M5F7805L +5V REG.
IN OUT GND
Q109, 110 CURRENT SOURSE
Q110 2SA1175
R112 560
R113 680
Q109 2SA1175
D108 1N4148M
D109 1N4148M
IC103
IC103 AD712
R123 100
Q118 2SB731 SWITCH
C121 220p 100V
R145 1k
R148 680 2W1W
R149 680 2W1W
D122 5V04
D123 5V04
D120 1N4148M
D121 1N4148M
R146 680 2W1W
R147 680 2W1W
IC102
IC102 AD712
C120 220p 100V
R144 1k
Q117 2SB809 SWITCH
D107 1N4148M
D106 1N4148M
R122 100
C123 47 63V
R134 1k
Q131 2SK241 GR-1
R135 1k
Q133 2SC1815
R138 4.7k
Q117 PC817
Q116 PC817
C122 47 63V
D110 HZS18
R137 1k
Q132 2SC1815
R136 330
Q131-133 CURRENT SOURSE
R126 1k
Q125 2SK241 GR-1 SWITCH
R127 1k
Q127 2SC1815 SWITCH
R128 68
Q126 2SC1815 SWITCH
R129 470
R121 1.5 2W
Q116 2SA985 REG.
R120 1.5 2W
Q115 2SA985 REG.
C171 0.1
D171 SEL2510C-D
D171 (POWER)
CN171
PL- PL+
CN102
R111 220
R105 91
R106 91
Q102 2SA1348 SWITCH
C111 0.01
R115 27k
R110 10k
R108 47k
R109 10k
Q103 2SA1348 SWITCH
Q104 2SA1175 SWITCH
R107 10k
C113 1000 63V
R114 10k
C112 0.1
Q108 2SC3402 SWITCH
Q107 2SC2785 SWITCH
Q106 2SC3623 SWITCH
Q111 2SC3623 SWITCH
R102 360k
R103 100k
R104 100k
D105 C10P20FUR
D103 C16P20F
D104 C16P20F
R116 120k
C109 4700 63V
C108 4700 63V
C105 2.2 160V
C104 0.01 630V
C110 0.33 TF
T101 POWER
RED
BLK
VIO
ORG
CNJ102
WHT
VIO
CNJ
C107 4700 63V
C106 4700 63V
R101 22 1W
C103 0.01 630V
D101 C16P20FR
D102 C16P20FR
D101-104 —RECT—
17.5
27.5
18.3
18.9
-17.3
-27.5


2
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17
【 POWER SUPPLY BOARD 】
【 PL BOARD 】
Q118 PC817
Q119 PC817
D115 HZS18
C125 47 63V
Q134-136 CURRENT SOURSE
R140 1k
Q135 2SA1015
R141 330
Q134 2SA1015
R139 4.7k
Q136 2SK241 GR-1
R142 1k
R143 1k
C124 47 63V
R131 68
Q129 2SA1015 SWITCH
R130 470
Q128 2SA1015 SWITCH
Q130 2SK241 GR-1 SWITCH
R132 1k
R133 1k
Q120 2SC2275 REG.
R125 1.5 2W
R124 1.5 2W
Q119 2SC2275 REG.
IC101
IC101 M5F7805L +5V REG.
IN OUT GND
Q109, 110 CURRENT SOURSE
Q110 2SA1175
R112 560
R113 680
Q109 2SA1175
C113 1000 63V
R114 10k
C112 0.1
Q108 2SC3402 SWITCH
Q107 2SC2785 SWITCH
Q106 2SC3623 SWITCH
Q111 2SC3623 SWITCH
R110 10k
R108 47k
R109 10k
R115 27k
C111 0.01
Q103 2SA1348 SWITCH
Q104 2SA1175 SWITCH
Q102 2SA1348 SWITCH
R107 10k
R105 91
R106 91
C171 0.1
D171 SEL2510C-D
D171 (POWER)
CN171
CN102
PL-
PL+
R111 220
IC103
IC103 AD712
+B
-B
D108 1N4148M
D109 1N4148M
Q118 2SB731 SWITCH
R123 100
C121 220p 100V
R145 1k
SYS
+18V
GND
-18V
R148 680 2½1W
R149 680 2½1W
D122 SV04
D123 SV04
D120 1N4148M
D121 1N4148M
R146 680 2½1W
R147 680 2½1W
R102 360k
R103 100k
R104 100k
D105 C10P20FUR
D103 C16P20F
D104 C16P20F
C109 4700 63V
C108 4700 63V
C105 2.2 160V
C104 0.01 630V
C110 0.33 TF
R116 120k
IC102
IC102 AD712
C120 220p 100V
R144 1k
Q117 2SD809 SWITCH
D107 1N4148M
D106 1N4148M
R122 100
R126 1k
Q125 2SK241 GR-1 SWITCH
R127 1k
Q127 2SC1815 SWITCH
R128 68
R129 470
Q126 2SC1815 SWITCH
C123 47 63V
R134 1k
Q131 2SK241 GR-1
R135 1k
Q133 2SC1815
R138 4.7k
Q132 2SC1815
R136 330
R137 1k
Q131-133 CURRENT SOURSE
Q117 PC817
Q116 PC817
D110 HZS18
C122 47 63V
R121 1.5 2W
Q116 2SA985 REG.
R120 1.5 2W
Q115 2SA985 REG.
C107 4700 63V
C106 4700 63V
R101 22 1W
C103 0.01 630V
D101 C16P20FR
D102 C16P20FR
D101-104 — RECT —
T101 POWER
RED
BLK
VIO
ORG
CNJ102
CNJ104
WHT
VIO
C102 0.01 400V
F101 1A
CNJ101
GRY
WHT
C101 0.01
S181 POWER
CNJ103
BLU
BRN
GRY
AC IN 100V 50/60HZ
17.5
27.5
18.9
-17.3
-27.5
-18.3

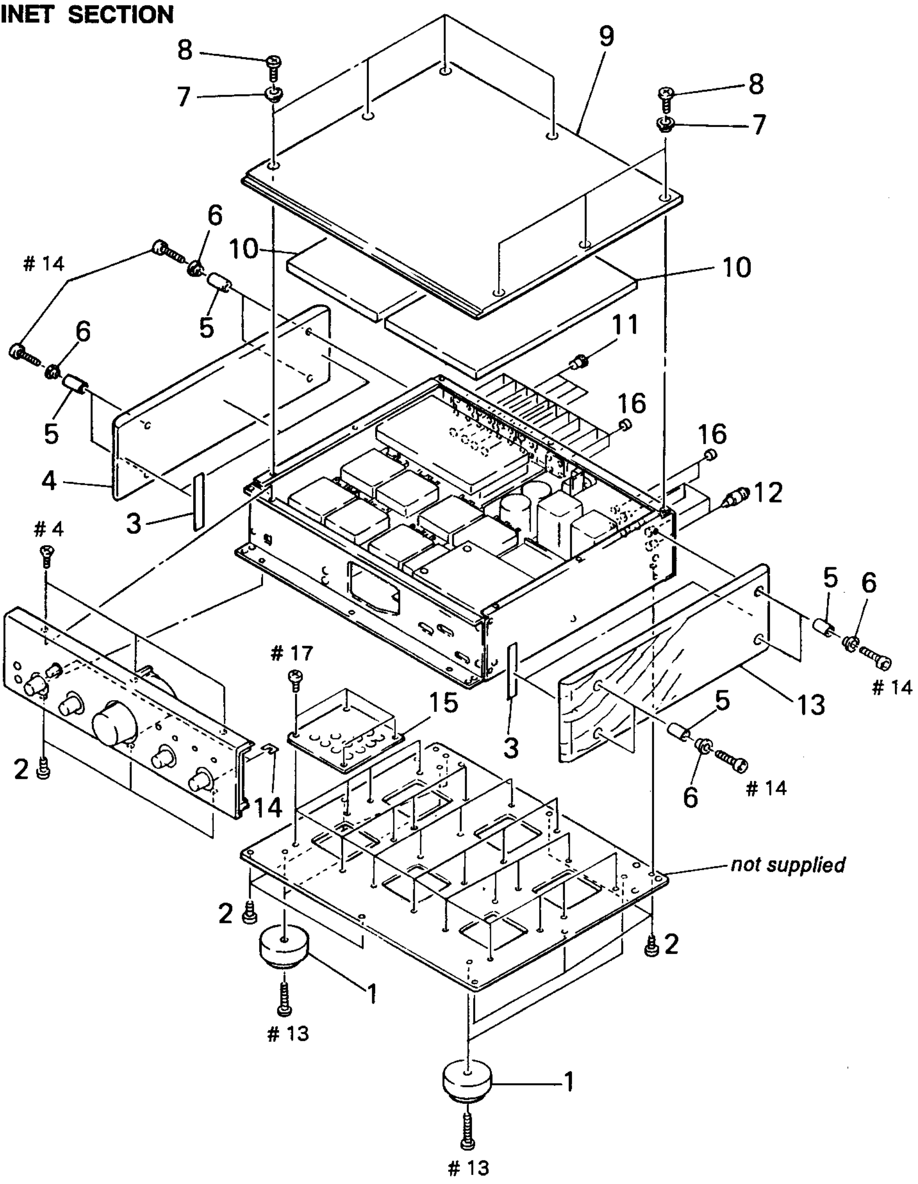
SECTION 4
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "＊" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

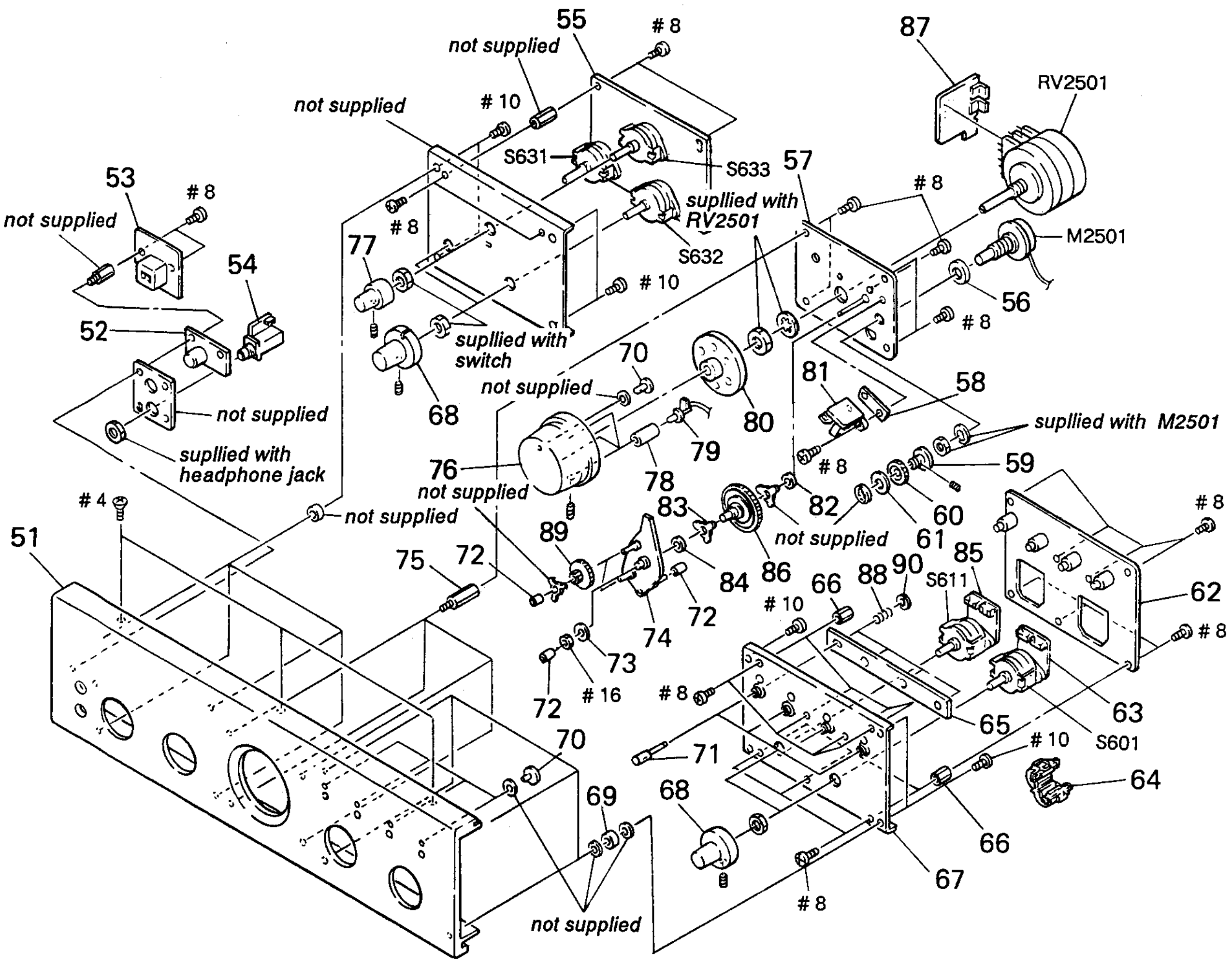
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) TA-ER1 CABINET SECTION



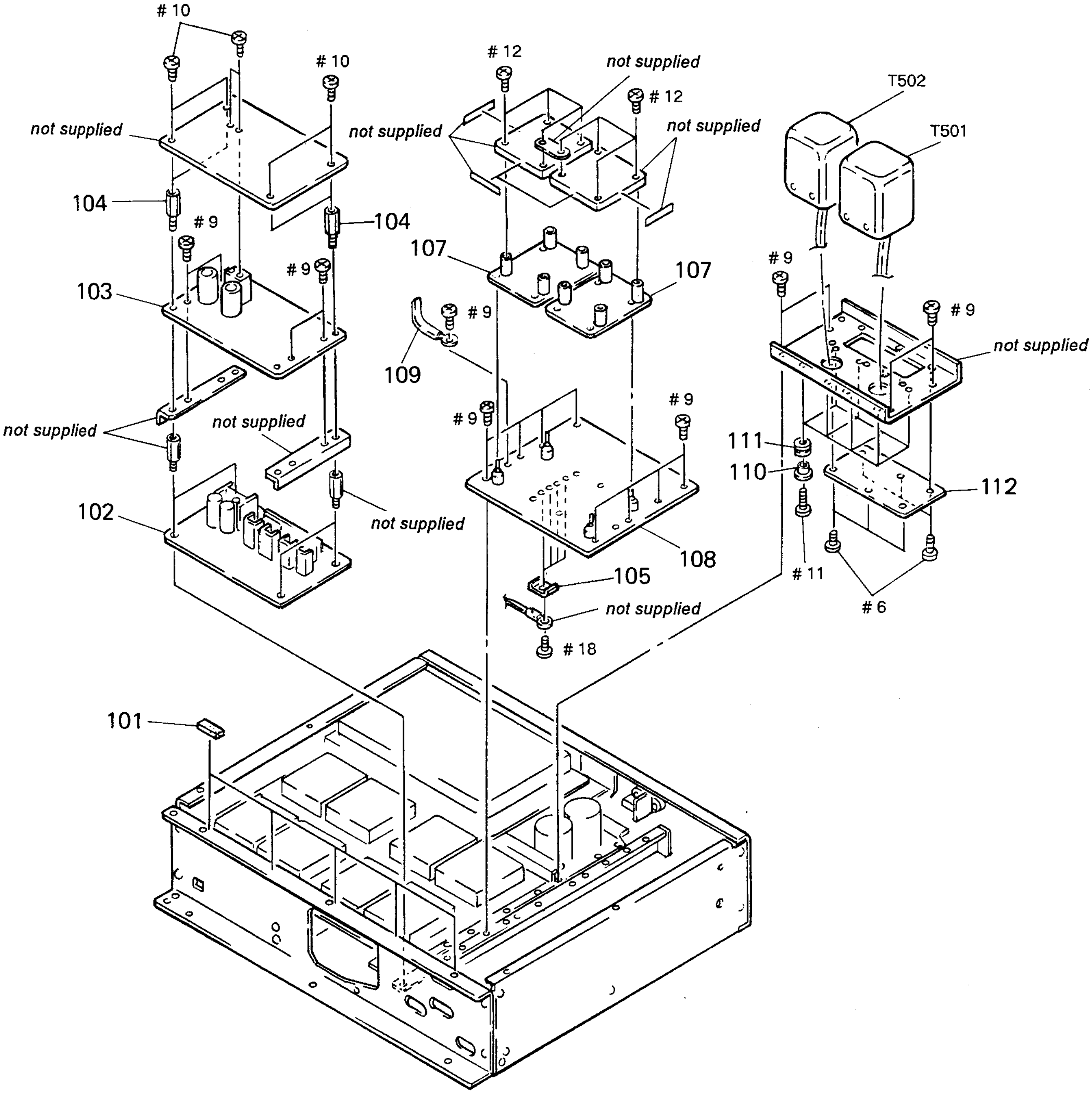
Ref. No.	Part No.	Description	Remark
1	X-4942-178-1	FOOT ASSY	
2	3-703-685-21	SCREW (+BV 3X8)	
3	9-911-835-XX	CUSHION, F	
4	4-949-043-01	PLATE (L), ORNAMENTAL SIDE	
5	4-949-006-01	SPACER (E)	
6	4-924-241-01	ESCUTCHEON (B)	
7	4-949-003-01	ESCUTCHEON	
8	4-924-242-21	SCREW (M3X10), FLAT HEAD	
* 9	4-949-050-01	PANEL	
* 10	4-924-265-01	ABSORBENT (A), ACOUSTIC	
11	1-691-682-11	CAP, CONNECTOR	
12	1-691-676-11	PLUG, SHORT	
13	4-949-042-01	PLATE (R), ORNAMENTAL SIDE	
14	3-544-028-01	SPACER (t=0.3)	
14	3-544-028-11	SPACER (t=0.5)	
14	3-544-028-21	SPACER	
* 15	1-641-950-11	PC BOARD, BOTTOM LID	
* 16	1-691-807-11	CAP, PIN JACK	

(2) TA-ER1 FRONT PANEL ASSY SECTION


55
#8
not supplied
87
RV2501
not supplied
#10
S631
S633
57
53
#8
not supplied
#8
supllied with RV2501
#8
77
S632
54
M2501
#10
56
52
#8
supllied with switch
70
81
58
not supplied
not supplied
68
80
supllied with M2501
supllied with headphone jack
79
76
#8
59
78
#4
not supplied
83
82
60
not supplied
#8
51
89
not supplied
61
85
75
72
84
86
66
88
90
S611
62
#10
72
#8
74
73
72
#16
#8
65
63
70
71
#10
S601
64
69
68
66
67
#8
not supplied

Ref. No.	Part No.	Description	Remark
51	4-949-259-01	PANEL, FRONT	
52	4-949-256-01	INDICATOR (RC)	
* 53	1-641-942-11	EYEBALL BOARD	
* 54	1-641-945-11	HEADPHONE (F) BAORD	
* 55	A-4345-758-A	ROTARY BOARD, COMPLETE	
* 56	4-949-276-01	SPACER (M)	
* 57	X-4942-182-1	BRACKET (V) ASSY	
* 58	4-949-251-01	SPACER (PS)	
59	4-949-262-01	PULLEY	
60	4-949-253-01	GEAR (M)	
61	4-949-265-01	SPRING, LEAF	
* 62	A-4345-757-A	CPU BOARD, COMPLETE	
* 63	1-641-944-11	SWITCH (R) BOARD	
64	1-543-619-41	CORE, RING	
* 65	4-949-366-01	DAMPER (C)	
* 66	4-924-280-01	BOSS (E)	
67	X-4942-143-1	CHASSIS (TS) ASSY, SUB	
68	4-949-005-01	KNOB (SA)	
* 69	4-949-027-01	SPACER (SC)	
70	4-924-233-01	INDICATOR	
71	4-924-295-01	BUTTON (F)	
72	4-949-266-01	BUSHING	
73	4-949-271-01	GEAR (MB)	
74	X-4942-180-1	LEVER ASSY	
* 75	4-949-250-01	BOSS (V)	
76	4-949-261-01	KNOB (V)	
77	4-949-029-01	KNOB (SB)	
* 78	4-901-919-00	HOUSE, LED LAMP	
* 79	1-641-947-11	INDICATOR BOARD	
80	X-4942-179-1	GEAR (V) ASSY	
* 81	1-641-946-11	PC BOARD	
82	3-701-436-21	WASHER, POLYEHTHYLENE	
* 83	4-949-275-01	SPRING (B), LEAF	
84	3-701-444-01	WASHER, 6	
* 85	1-641-943-11	SWITCH (L) BOARD	
86	X-4942-181-1	GEAR (MC) ASSY	
* 87	1-641-930-11	VOLUM BOARD	
88	4-915-427-01	SPRING, COMPRESSION	
89	4-949-270-01	GEAR (MA)	
M2501	1-541-941-11	MOTOR	
* RV2501	1-241-752-11	RES, VAR, CARBON 20KX3	
S601	1-692-008-11	SWITCH, ROTARY (INPUT SELECTOR) 8P	
S611	1-692-006-11	SWITCH, ROTARY (INPUT SELECTOR) 6P	
S631	1-692-004-11	SWITCH, ROTARY	
S632	1-692-005-11	SWITCH, ROTARY	
S633	1-692-007-11	SWITCH, ROTARY	

(3) TA-ER1 CHASSIS SECTION 1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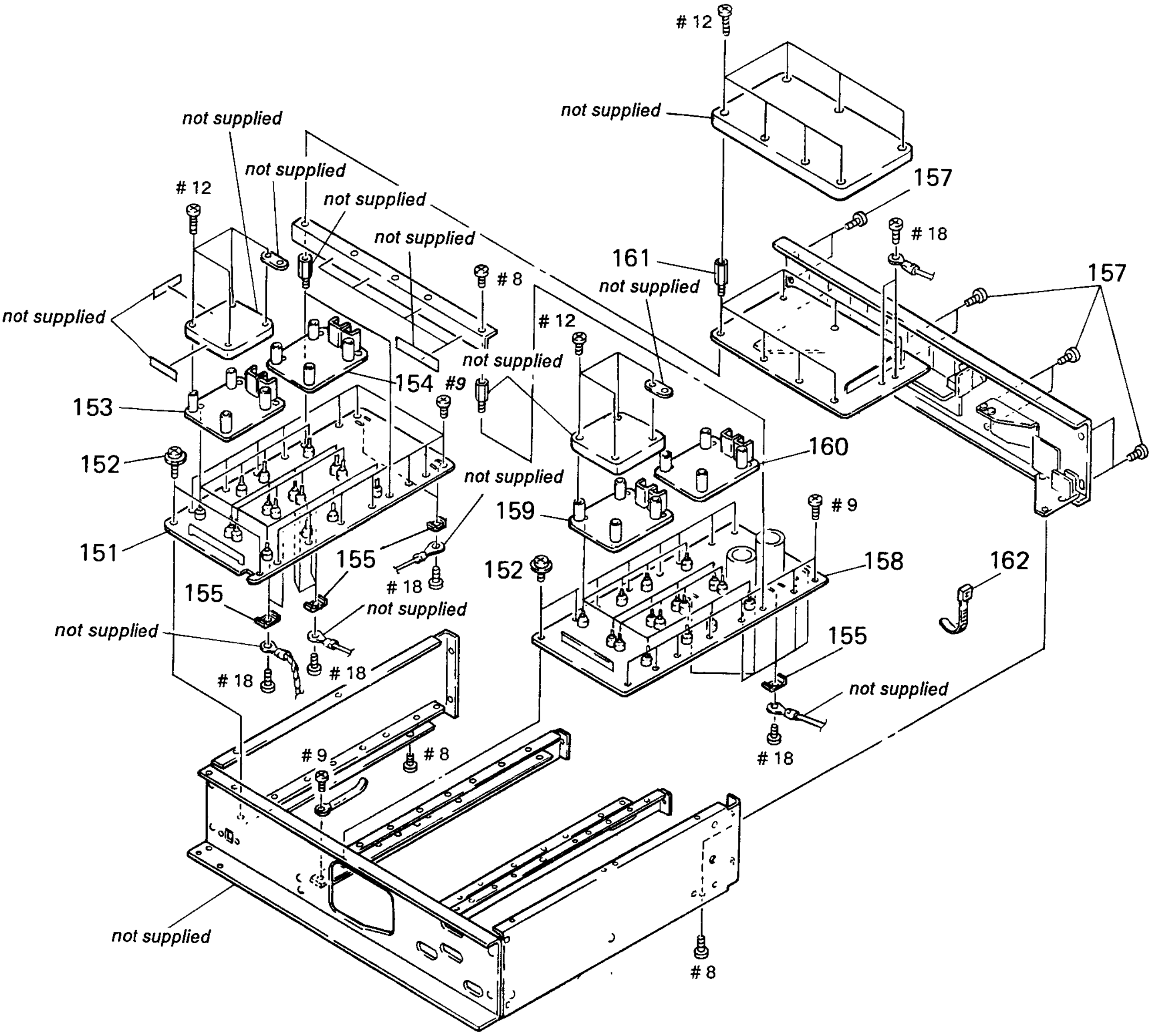
111
110
112
102
not supplied
108
105
#11
not supplied
#6
#18
101

Ref. No.	Part No.	Description	Remark
101	9-911-840-XX	CUSHION, RUBBER	
* 102	A-4345-591-A	MOTOR DRIVE BOARD, COMPLETE	
* 103	A-4345-590-A	LATCH BOARD, COMPLETE	
* 104	4-949-002-01	BOSS (C)	
* 105	4-924-264-21	TERMINAL, MOUNT	
* 107	A-4345-589-A	EQ UNIT BOARD, COMPLETE	
108	A-4347-964-A	EQ MAIN BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
* 109	3-701-822-00	HOLDER, WIRE	
110	4-949-015-01	COLLAR (ST)	
111	4-936-305-01	BUSHING	
* 112	1-641-924-11	MC RELAY BOARD	
T501	1-423-271-11	TRANSFORMER, INPUT	
T502	1-423-271-11	TRANSFORMER, INPUT	

(4) TA-ER1 CHASSIS SECTION 2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154
#9
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160
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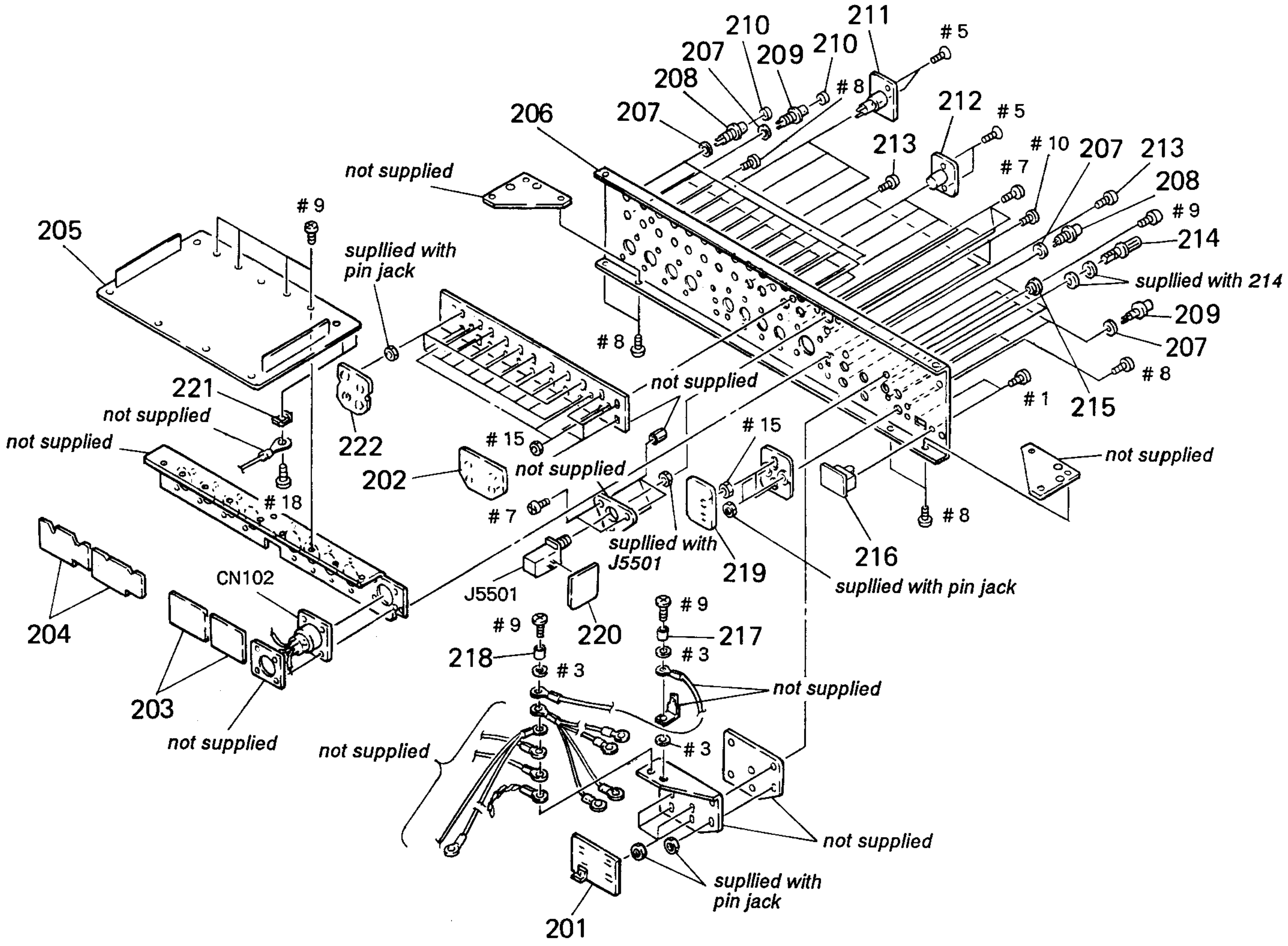
152
158
162
# 18
155
not supplied
155
not supplied
not supplied
# 18
# 18
# 18
# 9
# 8
not supplied
# 8

Ref. No.	Part No.	Description	Remark
151	A-4347-963-A	INPUT MAIN BOARD, COMPLETE	
152	X-4908-910-1	SCREW ASSY (+ BVTT)	
* 153	A-4345-584-A	PI UNIT BOARD, COMPLETE	
* 154	A-4345-583-A	MI UNIT BOARD, COMPLETE	
* 155	4-924-264-21	TERMINAL, MOUNT	
157	3-703-685-21	SCREW (+BV 3X8)	
* 158	A-4345-585-A	OUT MAIN BOARD, COMPLETE	
* 159	A-4345-586-A	PO UNIT BOARD, COMPLETE	
* 160	A-4345-587-A	MO UNIT BOARD, COMPLETE	
* 161	4-949-000-01	BOSS (B)	
162	3-655-653-21	BAND (TAITON), BINDING	

(5) TA-ER1 REAR PANEL ASSY SECTION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# 5
213
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# 7
208
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# 9
# 9
214
205
supllied with pin jack
supllied with 214
209
# 8
207
# 8
not supplied
221
# 1
215
not supplied
not supplied
# 15
222
# 15
not supplied
202
# 18
# 7
supllied with J5501
219
216
# 8
CN102
supllied with pin jack
204
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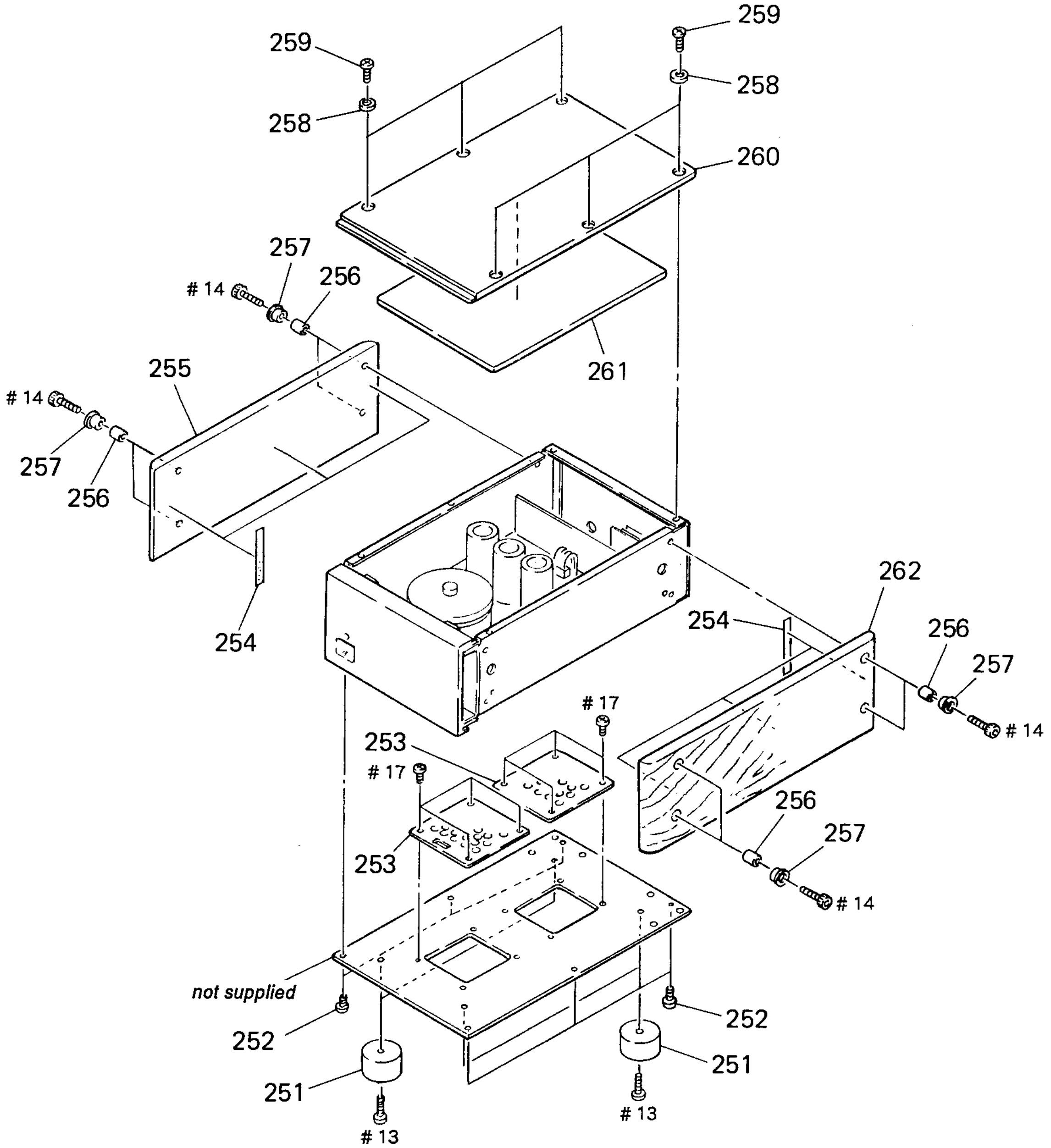
# 9
220
217
218
# 3
# 3
203
not supplied
not supplied
not supplied
# 3
not supplied
supllied with pin jack
201

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 201	1-641-935-11	MM IN BOARD		213	3-703-685-21	SCREW (+BV 3X8)	
* 202	1-642-030-11	U OUT BOARD		* 214	4-935-253-01	TERMINAL, SP	
* 203	1-641-931-11	BALANCE OUT NORM BOARD		215	2-371-561-00	BUSHING (P), INSULATING	
* 204	1-641-932-11	BALANCE IN CD BOARD		* 216	1-641-938-11	MCG SWITCH BOARD	
* 205	A-4345-581-A	INPUT RELAY BOARD, COMPLETE		* 217	4-949-021-01	SPACER (D)	
* 206	4-949-044-11	PANEL, BACK		* 218	4-949-022-01	SPACER (C)	
* 207	4-949-030-01	SPACER (B)		* 219	1-641-936-11	MC IN BOARD	
208	1-573-057-21	JACK, PIN 1P		* 220	1-641-937-11	HEADPHONE (R) BOARD	
209	1-573-057-31	JACK, PIN 1P		* 221	4-924-264-21	TERMINAL, MOUNT	
* 210	1-691-807-11	CAP, PIN JACK		* 222	1-641-934-11	U IN BOARD	
211	1-568-917-11	CONNECTOR, CANON (SOCKET) 3P		CN102	1-690-736-11	LEAD (WITH CONNECTOR)	
212	1-569-226-11	CONNECTOR (RECEPTACLE)		J5501	1-507-796-61	JACK (PHONES)	

(6) RPS-ER1 CABINET SECTION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# 14
# 17
253
# 17
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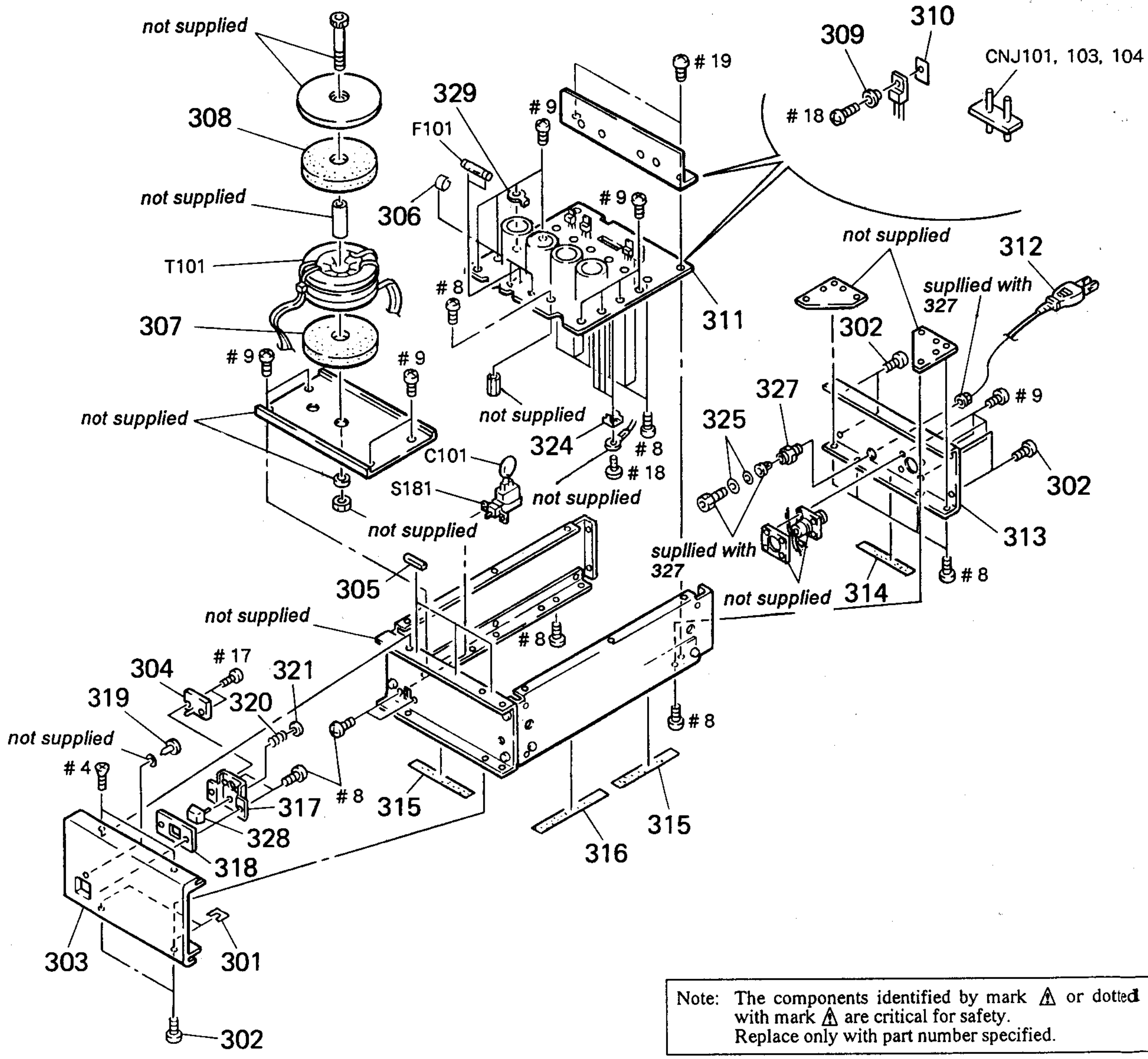
256
257
# 14
not supplied
252
252
251
251
# 13
# 13

Ref. No.	Part No.	Description	Remark
251	X-4942-178-1	FOOT ASSY	
252	3-703-685-21	SCREW (+BV 3X8)	
* 253	1-641-950-11	PC BOARD, BOTTOM LID	
254	9-911-835-XX	CUSHION, F	
255	4-949-043-01	PLATE (L), ORNAMENTAL SIDE	
256	4-949-006-01	SPACER (E)	

Ref. No.	Part No.	Description	Remark
257	4-924-241-01	ESCUTCHEON (B)	
258	4-949-003-01	ESCUTCHEON	
259	4-924-242-21	SCREW (M3X10), FLAT HEAD	
* 260	4-949-041-01	PANEL (D)	
* 261	4-924-265-01	ABSORBENT (A), ACOUSTIC	
262	4-949-042-01	PLATE (R), ORNAMENTAL SIDE	

(7) RPS-ER1 CHASSIS SECTION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F101
306
#9
#9
#8
not supplied
324
#8
#18
C101
S181
not supplied
not supplied
#19
309
310
#18
CNJ101, 103, 104
311
not supplied
312
supllied with
327
302
327
325
#9
302
313
supllied with
327
#8
not supplied
314
305
not supplied
#8
304
#17
321
319
320
not supplied
#4
#8
317
315
328
318
#8
315
316
303
301
302

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
301	3-544-028-01	SPACER (t=0.3)	
301	3-544-028-11	SPACER (t=0.5)	
301	3-544-028-21	SPACER	
302	3-703-685-21	SCREW (+BV 3X8)	
303	4-949-047-01	PANEL (D), FRONT	
* 304	1-641-939-11	PL BOARD	
305	9-911-840-XX	CUSHION, RUBBER	
306	1-533-183-11	HOLDER, FUSE	
* 307	4-949-026-01	CUSHION (DA)	
* 308	4-949-025-01	CUSHION (DB)	
309	2-371-561-00	BUSHING (P), INSULATING	
* 310	4-916-721-01	SHEET, INSULATING	
* 311	A-4345-963-A	POWER BOARD, COMPLETE	
⚠312	1-559-271-11	CORD, POWER	
* 313	4-949-046-01	PANEL (D), BACK	
314	9-911-835-XX	CUSHION, F	

Ref. No.	Part No.	Description	Remark
315	3-645-258-00	CLOTH, GUIDE, C	
316	3-831-441-11	SPACER (10X160X0.5)	
* 317	X-4924-202-1	BRACKET (E) ASSY	
318	4-924-245-01	PLATE (E), ORNAMENTAL	
319	4-924-233-01	INDICATOR	
* 320	4-880-426-00	SPRING, COMPRESSION	
321	4-862-338-00	RING, STOPPER	
* 324	4-924-264-21	TERMINAL, MOUNT	
325	4-916-726-01	WASHER	
* 327	X-4885-924-1	BUSHING ASSY, CORD	
328	X-4924-201-1	KNOB (A) ASSY	
* 329	4-870-539-00	PLATE, GROUND	
⚠C101	1-161-744-00	CAP, CERAMIC 10000PF V	
⚠F101	1-532-078-00	FUSE, TIME-LAG 1A	
⚠S181	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)	
⚠T101	1-450-754-11	TRANSFORMER, POWER	

SECTION 5
ELECTRICAL PARTS LIST

BALANCE IN CD **BALANCE IN LINE** **BALANCE OUT INV**

BALANCE OUT NORM **CPU**

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When including parts by reference number, please include the board name.

Ref. No.	Part No.	Description			Remark
*	1-641-932-11	BALANCE IN CD BOARD			
		*******************			
		< CONNECTOR >			
* CN3001	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P			
* CN3002	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P			
**					
	1-641-932-11	BALANCE IN LINE BOARD			
		*********************			
		< CONNECTOR >			
* CN3003	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P			
* CN3004	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P			
**					
	1-641-931-11	BALANCE OUT INV BOARD			
		*********************			
		< CONNECTOR >			
* CN4503	1-573-863-11	PIN, CONNECTOR (PC BOARD) 4P			
**					
*	1-641-931-11	BALANCE OUT NORM BOARD			
		**********************			
		< CONNECTOR >			
* CN4502	1-573-863-11	PIN, CONNECTOR (PC BOARD) 4P			
**					
*	A-4345-757-A	CPU BOARD, COMPLETE			
		*******************			
		< CAPACITOR >			
C901	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C902	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C903	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C904	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C905	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C906	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C907	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C908	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C909	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C910	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C911	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C912	1-124-122-11	ELECT	100uF	20%	50V
C913	1-124-122-11	ELECT	100uF	20%	50V
C914	1-124-122-11	ELECT	100uF	20%	50V
C915	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C916	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C921	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C922	1-124-122-11	ELECT	100uF	20%	50V
C923	1-124-122-11	ELECT	100uF	20%	50V
C924	1-124-122-11	ELECT	100uF	20%	50V
		< CONNECTOR >			
* CN901	1-564-506-11	PLUG, CONNECTOR 3P			
* CN902	1-564-505-11	PLUG, CONNECTOR 2P			
		< DIODE >			
D901	8-719-801-78	DIODE 1SS184			
D902	8-719-801-78	DIODE 1SS184			
D905	8-719-301-58	DIODE SEL2910D-D			
D906	8-719-301-58	DIODE SEL2910D-D			
D907	8-719-301-58	DIODE SEL2910D-D			
D908	8-719-301-58	DIODE SEL2910D-D			
D921	8-719-801-78	DIODE 1SS184			
		< IC >			
IC901	8-759-047-59	IC HD6475208F-001			
IC902	8-759-500-31	IC X24C01P			
IC903	8-759-233-16	IC TC74HC373AF			
IC904	8-759-233-16	IC TC74HC373AF			
IC905	8-759-925-74	IC SN74HC04ANS			

CPU **EQ MAIN**

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q901	8-729-805-65	TRANSISTOR 2SA1344	
Q902	8-729-805-41	TRANSISTOR 2SC3398	
Q903	8-729-805-41	TRANSISTOR 2SC3398	
Q904	8-729-805-41	TRANSISTOR 2SC3398	
Q905	8-729-805-41	TRANSISTOR 2SC3398	
Q906	8-729-805-41	TRANSISTOR 2SC3398	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R901	1-216-031-00	METAL CHIP	180	5%	1/10W	
R902	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R903	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R904	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R905	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R906	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R907	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R908	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R909	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R910	1-216-033-00	METAL CHIP	220	5%	1/10W	
R911	1-216-033-00	METAL CHIP	220	5%	1/10W	
R912	1-216-033-00	METAL CHIP	220	5%	1/10W	
R913	1-216-033-00	METAL CHIP	220	5%	1/10W	
R914	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R915	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R916	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R917	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R918	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R919	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R920	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R921	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R922	1-216-041-00	METAL CHIP	470	5%	1/10W	

< SWITCH >

Ref.No.	Part No.	Description	Remark
S901	1-570-472-11	SWITCH, KEY BOARD (ATTM)	
S902	1-570-472-11	SWITCH, KEY BOARD (PHASE)	
S903	1-570-472-11	SWITCH, KEY BOARD (MODE)	
S904	1-570-472-11	SWITCH, KEY BOARD (MUTE)	

< OSCILLATOR >

Ref.No.	Part No.	Description	Remark
X901	1-577-121-11	VIBRATOR, CRYSTAL 20MHz	

****

A-4347-964-A EQ MAIN BOARD, COMPLETE
****

	Part No.	Description
	3-831-441-XX	CUSHION
*	4-924-264-21	TERMINAL, MOUNT
*	4-949-007-01	DAMPER (B)

< BUSBAR >

Ref.No.	Part No.	Description	Remark
* BB501	1-560-242-21	BUS BAR 4P	
* BB502	1-560-242-21	BUS BAR 4P	
* BB503	4-908-951-01	REINFORCEMENT (B), PWB	
* BB504	4-908-951-01	REINFORCEMENT (B), PWB	

< CAPACITOR >

Ref.No.	Part No.	Description			Remark
C551	1-137-349-11	FILM	0.47uF	5%	400V
C552	1-136-810-11	FILM	220PF	5%	100V
C553	1-107-352-11	MICA	0.016uF	2%	500V
C554	1-107-353-11	MICA	0.056uF	2%	500V
C555	1-107-352-11	MICA	0.016uF	2%	500V
C556	1-107-353-11	MICA	0.056uF	2%	500V
C557	1-136-810-11	FILM	220PF	5%	100V
C558	1-137-349-11	FILM	0.47uF	5%	400V
C559	1-136-808-11	FILM	100PF	5%	100V
C560	1-136-808-11	FILM	100PF	5%	100V
C565	1-137-348-11	FILM	0.01uF	10%	400V
C566	1-137-348-11	FILM	0.01uF	10%	400V
C567	1-137-348-11	FILM	0.01uF	10%	400V
C568	1-137-348-11	FILM	0.01uF	10%	400V
C593	1-129-702-00	FILM	0.001uF	5%	630V
C594	1-129-702-00	FILM	0.001uF	5%	630V

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
* CN501	1-564-340-00	PIN, CONNECTOR 6P	
* CN505	1-564-336-00	PIN, CONNECTOR 2P	
* CN506	1-564-505-11	PLUG, CONNECTOR 2P	
* CN510	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN551	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	

< JACK >

Ref.No.	Part No.	Description	Remark
* CNJ501	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P	
* CNJ502	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D553	8-719-987-63	DIODE 1N4148M	
D554	8-719-987-63	DIODE 1N4148M	
D556	8-719-987-63	DIODE 1N4148M	
D557	8-719-987-63	DIODE 1N4148M	

< IC >

Ref.No.	Part No.	Description	Remark
IC551	8-759-067-05	IC AD712JNS	
IC552	8-759-067-05	IC AD712JNS	

< COIL >

Ref.No.	Part No.	Description		Remark
L551	1-424-397-11	COIL, CHOKE	200uH	
L552	1-424-397-11	COIL, CHOKE	200uH	
L553	1-424-397-11	COIL, CHOKE	200uH	
L554	1-424-397-11	COIL, CHOKE	200uH	

EQ MAIN EQ UNIT EYEBALL

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R551	1-259-724-11	CARBON 100K 2% 1W	
R552	1-259-724-11	CARBON 100K 2% 1W	
R553	1-247-717-11	CARBON 2.2K 5% 1/4W	
R554	1-247-717-11	CARBON 2.2K 5% 1/4W	
R555	1-260-221-61	CARBON 100 0.50% 1W	
R556	1-260-221-61	CARBON 100 0.50% 1W	
R557	1-259-718-11	CARBON 56K 2% 1W	
R558	1-249-180-11	CARBON 56 5% 1/3W	
R559	1-259-718-11	CARBON 56K 2% 1W	
R560	1-259-748-11	CARBON 1M 2% 1W	
R561	1-259-748-11	CARBON 1M 2% 1W	
R562	1-249-210-11	CARBON 1K 5% 1/3W	
R563	1-249-210-11	CARBON 1K 5% 1/3W	
R564	1-249-180-11	CARBON 56 5% 1/3W	
R570	1-259-692-11	CARBON 4.7K 2% 1W	
R571	1-259-692-11	CARBON 4.7K 2% 1W	
R574	1-259-724-11	CARBON 100K 2% 1W	
R575	1-259-724-11	CARBON 100K 2% 1W	

< RELAY >

Ref. No.	Part No.	Description	Remark
RY552	1-515-887-11	RELAY	
RY553	1-515-887-11	RELAY	
RY554	1-515-887-11	RELAY	
RY555	1-515-887-11	RELAY	
RY556	1-515-614-11	RELAY	
RY558	1-515-614-11	RELAY	

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* A-4345-589-A EQ UNIT BOARD, COMPLETE
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C501	1-136-813-11	FILM 680PF 5% 100V	
C502	1-136-808-11	FILM 100PF 5% 100V	
C514	1-136-810-11	FILM 220PF 5% 100V	

< DIODE >

Ref. No.	Part No.	Description	Remark
D501	8-719-300-04	DIODE MV-104V	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q501	8-729-203-21	TRANSISTOR 2SK389-GR	
Q502	8-729-230-49	TRANSISTOR 2SC2712-G	
Q503	8-729-230-49	TRANSISTOR 2SC2712-G	
Q504	8-729-232-69	TRANSISTOR 2SK208GR3	
Q505	8-729-232-69	TRANSISTOR 2SK208GR3	
Q506	8-729-216-22	TRANSISTOR 2SA1162	
Q507	8-729-216-22	TRANSISTOR 2SA1162	
Q508	8-729-232-69	TRANSISTOR 2SK208GR3	
Q509	8-729-230-49	TRANSISTOR 2SC2712-G	
Q510	8-729-230-49	TRANSISTOR 2SC2712-G	
Q511	8-729-232-69	TRANSISTOR 2SK208GR3	
Q512	8-729-230-49	TRANSISTOR 2SC2712-G	
Q513	8-729-230-49	TRANSISTOR 2SC2712-G	
Q514	8-729-216-22	TRANSISTOR 2SA1162	
Q515	8-729-216-22	TRANSISTOR 2SA1162	
Q516	8-729-216-22	TRANSISTOR 2SA1162	
Q517	8-729-230-49	TRANSISTOR 2SC2712-G	
Q518	8-729-230-49	TRANSISTOR 2SC2712-G	
Q519	8-729-321-35	TRANSISTOR 2SK213	
Q520	8-729-307-65	TRANSISTOR 2SJ76	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R501	1-249-215-11	CARBON 1.6K 5% 1/3W	
R502	1-249-215-11	CARBON 1.6K 5% 1/3W	
R503	1-249-199-11	CARBON 360 5% 1/3W	
R504	1-249-192-11	CARBON 180 5% 1/3W	
R505	1-249-180-11	CARBON 56 5% 1/3W	
R506	1-249-210-11	CARBON 1K 5% 1/3W	
R507	1-249-234-11	CARBON 10K 5% 1/3W	
R508	1-249-234-11	CARBON 10K 5% 1/3W	
R509	1-249-218-11	CARBON 2.2K 5% 1/3W	
R510	1-249-217-11	CARBON 2K 5% 1/3W	
R511	1-249-194-11	CARBON 220 5% 1/3W	
R515	1-249-199-11	CARBON 360 5% 1/3W	
R517	1-249-192-11	CARBON 180 5% 1/3W	
R518	1-249-192-11	CARBON 180 5% 1/3W	
R519	1-249-212-11	CARBON 1.2K 5% 1/3W	
R520	1-249-232-11	CARBON 8.2K 5% 1/3W	
R521	1-249-232-11	CARBON 8.2K 5% 1/3W	
R522	1-249-234-11	CARBON 10K 5% 1/3W	
R523	1-249-217-11	CARBON 2K 5% 1/3W	
R524	1-249-212-11	CARBON 1.2K 5% 1/3W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV501	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	

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* 1-641-942-11 EYEBALL BOARD
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C621	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C622	1-124-122-11	ELECT 100uF 20% 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN621	1-564-337-00	PIN, CONNECTOR 3P	

< IC >

Ref. No.	Part No.	Description	Remark
IC621	8-749-920-59	IC A1QH3020S	

EYEBALL HEADPHONE (F) HEADPHONE (R) INDICATOR LATCH

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R652	1-259-412-11	CARBON 220 5% 1/6W	
		**	
*	1-641-945-11	HEADPHONE (F) BOARD *******************	
		< CAPACITOR >	
C4505	1-136-478-11	FILM 470PF 5% 630V	
C4506	1-136-478-11	FILM 470PF 5% 630V	
		< CONNECTOR >	
* CN4504	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
		< JACK >	
J4501	1-568-498-71	JACK, LARGE TYPE (PHONES)	
		< COIL >	
L4505	1-424-397-11	COIL, CHOKE 200uH	
L4506	1-424-397-11	COIL, CHOKE 200uH	
		**	
*	1-641-937-11	HEADPHONE (R) BOARD *******************	
		< CAPACITOR >	
C5501	1-136-478-11	FILM 470PF 5% 630V	
C5502	1-136-478-11	FILM 470PF 5% 630V	
		< CONNECTOR >	
* CN5515	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
		< JACK >	
J5501	1-507-796-61	JACK (PHONES)	
		< COIL >	
L5501	1-424-397-11	COIL, CHOKE 200uH	
L5502	1-424-397-11	COIL, CHOKE 200uH	
		**	
*	1-641-947-11	INDICATOR BOARD ***************	
		< DIODE >	
D771	8-719-301-39	LED SEL2210S	
		**	

Ref. No.	Part No.	Description	Remark
*	A-4345-590-A	LATCH BOARD, COMPLETE *********************	
		< CAPACITOR >	
C701	1-124-748-11	ELECT 22uF 20% 100V	
C702	1-124-748-11	ELECT 22uF 20% 100V	
C703	1-126-066-11	ELECT 470uF 20% 63V	
C704	1-126-066-11	ELECT 470uF 20% 63V	
C705	1-164-159-11	CERAMIC 0.1uF 50V	
C706	1-164-159-11	CERAMIC 0.1uF 50V	
C710	1-164-159-11	CERAMIC 0.1uF 50V	
C711	1-164-159-11	CERAMIC 0.1uF 50V	
C712	1-164-159-11	CERAMIC 0.1uF 50V	
C713	1-164-159-11	CERAMIC 0.1uF 50V	
C714	1-164-159-11	CERAMIC 0.1uF 50V	
C715	1-123-381-00	ELECT 2.2uF 20% 100V	
		< CONNECTOR >	
CN701	1-564-507-11	PLUG, CONNECTOR 4P	
CN702	1-564-104-00	PIN, CONNECTOR 3P	
* CN703	1-564-508-11	PLUG, CONNECTOR 5P	
* CN704	1-564-342-61	PIN, CONNECTOR 8P	
* CN705	1-564-339-00	PIN, CONNECTOR 5P	
* CN710	1-564-339-61	PIN, CONNECTOR 5P	
* CN711	1-569-997-11	PIN, CONNECTOR (PC BOARD) 10P	
* CN712	1-564-340-00	PIN, CONNECTOR 6P	
* CN713	1-564-342-11	PIN, CONNECTOR 8P	
* CN714	1-564-341-21	PIN, CONNECTOR 7P	
* CN715	1-564-342-61	PIN, CONNECTOR 8P	
* CN716	1-569-995-11	PIN, CONNECTOR (PC BOARD) 8P	
* CN717	1-564-336-00	PIN, CONNECTOR 2P	(Serial No. 4500051and later)
		< DIODE >	
D701	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC701	8-759-231-53	IC M5F7805	
IC702	8-759-603-69	IC M51957BL	
IC710	8-759-926-66	IC SN74HC373ANS	
IC711	8-759-926-66	IC SN74HC373ANS	
IC712	8-759-926-66	IC SN74HC373ANS	
IC713	8-759-926-66	IC SN74HC373ANS	
IC714	8-759-926-66	IC SN74HC373ANS	
		< COIL >	
L701	1-408-916-11	INDUCTOR 2.2mH	

LATCH

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q701	8-729-230-49	TRANSISTOR 2SC2712-G	
Q702	8-729-805-65	TRANSISTOR 2SA1344	
Q710	8-729-805-41	TRANSISTOR 2SC3398	
Q711	8-729-805-41	TRANSISTOR 2SC3398	
Q712	8-729-805-41	TRANSISTOR 2SC3398	
Q713	8-729-805-41	TRANSISTOR 2SC3398	
Q714	8-729-805-41	TRANSISTOR 2SC3398	
Q715	8-729-805-41	TRANSISTOR 2SC3398	
Q716	8-729-805-41	TRANSISTOR 2SC3398	
Q717	8-729-805-41	TRANSISTOR 2SC3398	
Q718	8-729-805-41	TRANSISTOR 2SC3398	
Q719	8-729-805-41	TRANSISTOR 2SC3398	
Q720	8-729-805-41	TRANSISTOR 2SC3398	
Q721	8-729-805-41	TRANSISTOR 2SC3398	
Q722	8-729-805-41	TRANSISTOR 2SC3398	
Q723	8-729-805-41	TRANSISTOR 2SC3398	
Q724	8-729-805-41	TRANSISTOR 2SC3398	
Q725	8-729-805-41	TRANSISTOR 2SC3398	
Q727	8-729-805-41	TRANSISTOR 2SC3398	
Q728	8-729-805-41	TRANSISTOR 2SC3398	
Q729	8-729-805-41	TRANSISTOR 2SC3398	
Q730	8-729-805-41	TRANSISTOR 2SC3398	
Q731	8-729-805-41	TRANSISTOR 2SC3398	
Q732	8-729-805-41	TRANSISTOR 2SC3398	
Q733	8-729-805-41	TRANSISTOR 2SC3398	
Q734	8-729-805-41	TRANSISTOR 2SC3398	
Q735	8-729-805-41	TRANSISTOR 2SC3398	
Q736	8-729-805-41	TRANSISTOR 2SC3398	
Q737	8-729-805-41	TRANSISTOR 2SC3398	
Q738	8-729-805-41	TRANSISTOR 2SC3398	
Q739	8-729-805-41	TRANSISTOR 2SC3398	
Q740	8-729-805-41	TRANSISTOR 2SC3398	
Q741	8-729-805-41	TRANSISTOR 2SC3398	
Q742	8-729-805-41	TRANSISTOR 2SC3398	
Q743	8-729-805-41	TRANSISTOR 2SC3398	
Q744	8-729-805-41	TRANSISTOR 2SC3398	
Q745	8-729-805-41	TRANSISTOR 2SC3398	
Q746	8-729-805-41	TRANSISTOR 2SC3398	
Q747	8-729-805-41	TRANSISTOR 2SC3398	
Q748	8-729-805-41	TRANSISTOR 2SC3398	
Q749	8-729-805-41	TRANSISTOR 2SC3398	
Q750	8-729-230-49	TRANSISTOR 2SC2712-G	
Q751	8-729-805-65	TRANSISTOR 2SA1344	
Q752	8-729-805-65	TRANSISTOR 2SA1344	
Q753	8-729-805-65	TRANSISTOR 2SA1344	
Q754	8-729-805-65	TRANSISTOR 2SA1344	
Q755	8-729-805-65	TRANSISTOR 2SA1344	
Q756	8-729-805-65	TRANSISTOR 2SA1344	
Q757	8-729-805-65	TRANSISTOR 2SA1344	
Q758	8-729-805-65	TRANSISTOR 2SA1344	
Q759	8-729-805-65	TRANSISTOR 2SA1344	
Q760	8-729-805-65	TRANSISTOR 2SA1344	
Q761	8-729-805-65	TRANSISTOR 2SA1344	
Q762	8-729-805-65	TRANSISTOR 2SA1344	
Q763	8-729-805-65	TRANSISTOR 2SA1344	
Q764	8-729-805-65	TRANSISTOR 2SA1344	
Q765	8-729-805-65	TRANSISTOR 2SA1344	
Q766	8-729-805-65	TRANSISTOR 2SA1344	
Q768	8-729-805-65	TRANSISTOR 2SA1344	
Q769	8-729-805-65	TRANSISTOR 2SA1344	
Q770	8-729-805-65	TRANSISTOR 2SA1344	
Q771	8-729-805-65	TRANSISTOR 2SA1344	
Q772	8-729-805-65	TRANSISTOR 2SA1344	
Q773	8-729-805-65	TRANSISTOR 2SA1344	
Q774	8-729-805-65	TRANSISTOR 2SA1344	
Q775	8-729-805-65	TRANSISTOR 2SA1344	
Q776	8-729-805-65	TRANSISTOR 2SA1344	
Q777	8-729-805-65	TRANSISTOR 2SA1344	
Q778	8-729-805-65	TRANSISTOR 2SA1344	
Q779	8-729-805-65	TRANSISTOR 2SA1344	
Q780	8-729-805-65	TRANSISTOR 2SA1344	
Q781	8-729-805-65	TRANSISTOR 2SA1344	
Q782	8-729-805-65	TRANSISTOR 2SA1344	
Q783	8-729-805-65	TRANSISTOR 2SA1344	
Q784	8-729-805-65	TRANSISTOR 2SA1344	
Q785	8-729-805-65	TRANSISTOR 2SA1344	
Q786	8-729-805-65	TRANSISTOR 2SA1344	
Q787	8-729-805-65	TRANSISTOR 2SA1344	
Q788	8-729-805-65	TRANSISTOR 2SA1344	
Q789	8-729-805-65	TRANSISTOR 2SA1344	
Q790	8-729-805-65	TRANSISTOR 2SA1344	
		< RESISTOR >	
R701	1-259-438-11	CARBON 2.7K 5% 1/6W	
R702	1-259-428-11	CARBON 1K 5% 1/6W	
R703	1-259-476-11	CARBON 100K 5% 1/6W	
R704	1-259-466-11	CARBON 39K 5% 1/6W	
R710	1-259-402-11	CARBON 82 5% 1/6W	
R711	1-259-402-11	CARBON 82 5% 1/6W	
R712	1-259-420-11	CARBON 470 5% 1/6W	
R713	1-259-413-11	CARBON 240 5% 1/6W	
R714	1-259-413-11	CARBON 240 5% 1/6W	
R715	1-259-413-11	CARBON 240 5% 1/6W	
R716	1-259-413-11	CARBON 240 5% 1/6W	
R717	1-259-420-11	CARBON 470 5% 1/6W	
R718	1-259-413-11	CARBON 240 5% 1/6W	
R719	1-246-455-11	CARBON 180 5% 1/4W	
R720	1-259-413-11	CARBON 240 5% 1/6W	
R721	1-259-420-11	CARBON 470 5% 1/6W	

Ref. No.	Part No.	Description				Remark
R722	1-259-413-11	CARBON	240	5%	1/6W	
R723	1-259-413-11	CARBON	240	5%	1/6W	
R724	1-259-413-11	CARBON	240	5%	1/6W	
R725	1-259-420-11	CARBON	470	5%	1/6W	
R726	1-259-413-11	CARBON	240	5%	1/6W	
R727	1-259-396-11	CARBON	47	5%	1/6W	
R728	1-259-420-11	CARBON	470	5%	1/6W	
R729	1-259-402-11	CARBON	82	5%	1/6W	
R730	1-259-402-11	CARBON	82	5%	1/6W	
R731	1-259-402-11	CARBON	82	5%	1/6W	
R732	1-259-402-11	CARBON	82	5%	1/6W	
R733	1-259-420-11	CARBON	470	5%	1/6W	
R734	1-259-420-11	CARBON	470	5%	1/6W	
R735	1-259-420-11	CARBON	470	5%	1/6W	
R736	1-259-420-11	CARBON	470	5%	1/6W	
R737	1-259-413-11	CARBON	240	5%	1/6W	
R738	1-259-413-11	CARBON	240	5%	1/6W	
R739	1-259-402-11	CARBON	82	5%	1/6W	
R740	1-259-403-11	CARBON	91	5%	1/6W	
R741	1-259-403-11	CARBON	91	5%	1/6W	
R742	1-259-403-11	CARBON	91	5%	1/6W	
R743	1-259-403-11	CARBON	91	5%	1/6W	
R744	1-259-413-11	CARBON	240	5%	1/6W	
R745	1-259-417-11	CARBON	360	5%	1/6W	
R746	1-259-403-11	CARBON	91	5%	1/6W	
R747	1-259-403-11	CARBON	91	5%	1/6W	
R748	1-259-417-11	CARBON	360	5%	1/6W	
R749	1-259-417-11	CARBON	360	5%	1/6W	
R750	1-259-413-11	CARBON	240	5%	1/6W	
R751	1-259-417-11	CARBON	360	5%	1/6W	
R752	1-259-403-11	CARBON	91	5%	1/6W	
R753	1-259-403-11	CARBON	91	5%	1/6W	
R754	1-259-420-11	CARBON	470	5%	1/6W	
R755	1-259-413-11	CARBON	240	5%	1/6W	
R756	1-259-413-11	CARBON	240	5%	1/6W	
R757	1-259-413-11	CARBON	240	5%	1/6W	
R758	1-259-420-11	CARBON	470	5%	1/6W	
R763	1-259-452-11	CARBON	10K	5%	1/6W	
R764	1-259-452-11	CARBON	10K	5%	1/6W	
R765	1-259-452-11	CARBON	10K	5%	1/6W	
R766	1-259-452-11	CARBON	10K	5%	1/6W	
R790	1-259-402-11	CARBON	82	5%	1/6W	

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* 1-641-936-11 MC IN BOARD
****

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C591	1-136-433-11	FILM	100PF	5%	630V	
C592	1-136-433-11	FILM	100PF	5%	630V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN561	1-573-863-11	PIN, CONNECTOR (PC BOARD) 4P	

< COIL >

Ref. No.	Part No.	Description		Remark
L561	1-424-397-11	COIL, CHOKE	200uH	
L562	1-424-397-11	COIL, CHOKE	200uH	

****

* 1-641-924-11 MC RELAY BOARD
****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN552	1-564-336-00	PIN, CONNECTOR 2P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D551	8-719-987-63	DIODE 1N4148M	

< RELAY >

Ref. No.	Part No.	Description	Remark
RY550	1-515-887-11	RELAY	
RY551	1-515-887-11	RELAY	

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* 1-641-938-11 MCG SWITCH BOARD
****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN560	1-564-496-11	PIN, CONNECTOR 3P	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S501	1-571-083-31	SWITCH, SLIDE	

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* A-4345-583-A MI UNIT BOARD, COMPLETE
****

Ref. No.	Part No.	Description	Remark
	7-682-147-15	SCREW, TR	
	7-682-547-09	SCREW +B 3X6	

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C3201	1-136-813-11	FILM	680PF	5%	100V	
C3202	1-136-808-11	FILM	100PF	5%	100V	
C3214	1-136-810-11	FILM	220PF	5%	100V	

< DIODE >

Ref. No.	Part No.	Description	Remark
D3201	8-719-300-04	DIODE MV-104V	

MI UNIT **MM IN** **MO UNIT**

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q3201	8-759-108-01	IC uPA68HA-M	
Q3202	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3203	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3206	8-729-216-22	TRANSISTOR 2SA1162	
Q3207	8-729-216-22	TRANSISTOR 2SA1162	
Q3208	8-729-232-69	TRANSISTOR 2SK208GR3	
Q3209	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3210	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3214	8-729-216-22	TRANSISTOR 2SA1162	
Q3215	8-729-216-22	TRANSISTOR 2SA1162	
Q3216	8-729-216-22	TRANSISTOR 2SA1162	
Q3217	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3218	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3219	8-729-321-35	TRANSISTOR 2SK213	
Q3220	8-729-307-65	TRANSISTOR 2SJ76	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R3201	1-249-208-11	CARBON 820 5% 1/3W	
R3202	1-249-208-11	CARBON 820 5% 1/3W	
R3203	1-249-192-11	CARBON 180 5% 1/3W	
R3204	1-249-192-11	CARBON 180 5% 1/3W	
R3205	1-249-194-11	CARBON 220 5% 1/3W	
R3206	1-249-210-11	CARBON 1K 5% 1/3W	
R3207	1-249-234-11	CARBON 10K 5% 1/3W	
R3208	1-249-234-11	CARBON 10K 5% 1/3W	
R3209	1-249-218-11	CARBON 2.2K 5% 1/3W	
R3210	1-249-217-11	CARBON 2K 5% 1/3W	
R3211	1-249-194-11	CARBON 220 5% 1/3W	
R3215	1-249-199-11	CARBON 360 5% 1/3W	
R3217	1-249-192-11	CARBON 180 5% 1/3W	
R3218	1-249-192-11	CARBON 180 5% 1/3W	
R3219	1-249-212-11	CARBON 1.2K 5% 1/3W	

< VARIABLE RESISTOR >

Ref.No.	Part No.	Description	Remark
RV3201	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	

****

* 1-641-935-11 MM IN BOARD
****

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
* CN571	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN572	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	

< COIL >

Ref.No.	Part No.	Description	Remark
L563	1-424-397-11	COIL, CHOKE 200uH	
L564	1-424-397-11	COIL, CHOKE 200uH	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R591	1-247-717-11	CARBON 2.2K 5% 1/4W	
R592	1-247-717-11	CARBON 2.2K 5% 1/4W	

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* A-4345-587-A MO UNIT BOARD, COMPLETE
****

< CAPACITOR >

Ref.No.	Part No.	Description	Remark
C4201	1-136-813-11	FILM 680PF 5% 100V	
C4202	1-136-808-11	FILM 100PF 5% 100V	
C4214	1-136-810-11	FILM 220PF 5% 100V	

< DIODE >

Ref.No.	Part No.	Description	Remark
D4201	8-719-300-04	DIODE MV-104V	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q4201	8-759-108-01	IC uPA68HA-M	
Q4202	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4203	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4206	8-729-216-22	TRANSISTOR 2SA1162	
Q4207	8-729-216-22	TRANSISTOR 2SA1162	
Q4208	8-729-232-69	TRANSISTOR 2SK208GR3	
Q4209	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4210	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4214	8-729-216-22	TRANSISTOR 2SA1162	
Q4215	8-729-216-22	TRANSISTOR 2SA1162	
Q4216	8-729-216-22	TRANSISTOR 2SA1162	
Q4217	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4218	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4219	8-729-321-35	TRANSISTOR 2SK213	
Q4220	8-729-307-65	TRANSISTOR 2SJ76	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R4201	1-249-208-11	CARBON 820 5% 1/3W	
R4202	1-249-208-11	CARBON 820 5% 1/3W	
R4203	1-249-192-11	CARBON 180 5% 1/3W	
R4204	1-249-192-11	CARBON 180 5% 1/3W	
R4205	1-249-195-11	CARBON 240 5% 1/3W	
R4206	1-249-210-11	CARBON 1K 5% 1/3W	
R4207	1-249-234-11	CARBON 10K 5% 1/3W	
R4208	1-249-234-11	CARBON 10K 5% 1/3W	
R4209	1-249-218-11	CARBON 2.2K 5% 1/3W	
R4210	1-249-217-11	CARBON 2K 5% 1/3W	
R4211	1-249-194-11	CARBON 220 5% 1/3W	
R4215	1-249-199-11	CARBON 360 5% 1/3W	
R4217	1-249-192-11	CARBON 180 5% 1/3W	
R4218	1-249-192-11	CARBON 180 5% 1/3W	
R4219	1-249-212-11	CARBON 1.2K 5% 1/3W	

MO UNIT MOTOR DRIVE

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV4201	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	

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Ref. No.	Part No.	Description	Remark
*	A-4345-591-A	MOTOR DRIVE BOARD, COMPLETE ***************************	
*	4-921-402-21	HEAT SINK	
	4-949-004-01	HOLDER, LED	
	7-682-547-09	SCREW +B 3X6	
		< BUSBAR >	
* BB801	4-908-951-01	REINFORCEMENT (B), PWB	
		< CAPACITOR >	
C801	1-126-056-11	ELECT 1000uF 20% 50V	
C802	1-126-056-11	ELECT 1000uF 20% 50V	
C803	1-164-159-11	CERAMIC 0.1uF 50V	
C804	1-137-348-11	FILM 0.01uF 10% 400V	
C805	1-137-348-11	FILM 0.01uF 10% 400V	
C806	1-123-382-00	ELECT 3.3uF 20% 100V	
C810	1-164-159-11	CERAMIC 0.1uF 50V	
C811	1-164-159-11	CERAMIC 0.1uF 50V	
C812	1-164-159-11	CERAMIC 0.1uF 50V	
C813	1-164-159-11	CERAMIC 0.1uF 50V	
C814	1-136-439-11	FILM 330PF 5% 630V	
C820	1-162-290-31	CERAMIC 470PF 10% 50V	
C850	1-136-163-00	FILM 0.068uF 5% 50V	
		< CONNECTOR >	
* CN801	1-564-508-11	PLUG, CONNECTOR 5P	
* CN802	1-564-338-61	PIN, CONNECTOR 4P	
* CN803	1-564-340-00	PIN, CONNECTOR 6P	
* CN804	1-573-264-11	PIN, CONNECTOR 5P	
* CN805	1-564-505-11	PLUG, CONNECTOR 2P	
		< DIODE >	
D801	8-719-001-76	DIODE UZL-12M3	
D802	8-719-987-63	DIODE 1N4148M	
D811	8-719-987-63	DIODE 1N4148M	
D830	8-719-200-82	DIODE 11ES2	
D831	8-719-200-82	DIODE 11ES2	
D832	8-719-200-82	DIODE 11ES2	
D833	8-719-200-82	DIODE 11ES2	
D850	8-719-987-63	DIODE 1N4148M	
D851	8-719-933-33	DIODE HZS6A1L	
D852	8-719-987-63	DIODE 1N4148M	
D861	8-719-301-38	LED SEL2210S-C	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC801	8-759-971-80	IC AD712JN	
IC802	8-759-340-46	IC CD4046BE	
IC803	8-759-917-11	IC SN74HC393N	
IC804	8-759-921-10	IC SN74HC86AN	
IC805	8-759-001-28	IC MC74HC137N	
		< TRANSISTOR >	
Q801	8-729-809-26	TRANSISTOR 2SA1606-E	
Q802	8-729-216-22	TRANSISTOR 2SA1162	
Q803	8-729-200-56	TRANSISTOR 2SK241-GR	
Q830	8-729-216-22	TRANSISTOR 2SA1162	
Q831	8-729-809-29	TRANSISTOR 2SC4159-E	
Q832	8-729-216-22	TRANSISTOR 2SA1162	
Q833	8-729-809-29	TRANSISTOR 2SC4159-E	
Q834	8-729-216-22	TRANSISTOR 2SA1162	
Q835	8-729-809-29	TRANSISTOR 2SC4159-E	
Q836	8-729-216-22	TRANSISTOR 2SA1162	
Q837	8-729-809-29	TRANSISTOR 2SC4159-E	
Q861	8-729-805-41	TRANSISTOR 2SC3398	
		< RESISTOR >	
R800	1-249-478-11	CARBON 2.2 5% 1/2W	
R801	1-249-478-11	CARBON 2.2 5% 1/2W	
R802	1-259-428-11	CARBON 1K 5% 1/6W	
R803	1-259-404-11	CARBON 100 5% 1/6W	
R804	1-259-452-11	CARBON 10K 5% 1/6W	
R805	1-259-452-11	CARBON 10K 5% 1/6W	
R806	1-259-452-11	CARBON 10K 5% 1/6W	
R807	1-259-452-11	CARBON 10K 5% 1/6W	
R808	1-259-459-11	CARBON 20K 5% 1/6W	
R809	1-259-466-11	CARBON 39K 5% 1/6W	
R810	1-259-474-11	CARBON 82K 5% 1/6W	
R811	1-259-481-11	CARBON 160K 5% 1/6W	
R812	1-259-442-11	CARBON 3.9K 5% 1/6W	
R813	1-259-452-11	CARBON 10K 5% 1/6W	
R814	1-259-447-11	CARBON 6.2K 5% 1/6W	
R815	1-259-428-11	CARBON 1K 5% 1/6W	
R820	1-259-460-11	CARBON 22K 5% 1/6W	
R821	1-259-460-11	CARBON 22K 5% 1/6W	
R822	1-259-470-11	CARBON 56K 5% 1/6W	
R823	1-259-458-11	CARBON 18K 5% 1/6W	
R824	1-259-452-11	CARBON 10K 5% 1/6W	
R830	1-259-436-11	CARBON 2.2K 5% 1/6W	
R831	1-247-742-11	CARBON 180 5% 1/2W	
R832	1-259-410-11	CARBON 180 5% 1/6W	
R833	1-259-436-11	CARBON 2.2K 5% 1/6W	
R834	1-247-742-11	CARBON 180 5% 1/2W	
R835	1-259-410-11	CARBON 180 5% 1/6W	
R836	1-259-436-11	CARBON 2.2K 5% 1/6W	

MOTOR DRIVE INPUT MAIN

Ref. No.	Part No.	Description				Remark
R837	1-247-742-11	CARBON	180	5%	1/2W	
R838	1-259-410-11	CARBON	180	5%	1/6W	
R839	1-259-436-11	CARBON	2.2K	5%	1/6W	
R840	1-247-742-11	CARBON	180	5%	1/2W	
R841	1-259-410-11	CARBON	180	5%	1/6W	
R850	1-259-466-11	CARBON	39K	5%	1/6W	
R851	1-259-442-11	CARBON	3.9K	5%	1/6W	
R852	1-259-468-11	CARBON	47K	5%	1/6W	
R853	1-259-452-11	CARBON	10K	5%	1/6W	
R861	1-259-412-11	CARBON	220	5%	1/6W	

< VARIABLE RESISTOR >

RV801	1-228-993-00	RES, ADJ, METAL 4.7K

< TRANSFORMER >

T801	1-427-622-11	TRANSFORMER, OUTPUT
T802	1-427-622-11	TRANSFORMER, OUTPUT

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* A-4347-963-A MOUNTED PCB, INPUT MAIN
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	3-831-441-XX	CUSHION
*	4-924-264-21	TERMINAL, MOUNT
	7-682-547-09	SCREW +B 3X6

< BUSBAR >

* BB3001	4-908-951-01	REINFORCEMENT (B), PWB
* BB3002	4-908-951-01	REINFORCEMENT (B), PWB

< CAPACITOR >

C3001	1-137-348-11	FILM	0.01uF	10%	400V
C3002	1-137-348-11	FILM	0.01uF	10%	400V
C3003	1-137-348-11	FILM	0.01uF	10%	400V
C3004	1-137-348-11	FILM	0.01uF	10%	400V
C3005	1-136-810-11	FILM	220PF	5%	100V
C3006	1-136-810-11	FILM	220PF	5%	100V
C3007	1-136-810-11	FILM	220PF	5%	100V
C3008	1-136-810-11	FILM	220PF	5%	100V
C3010	1-136-810-11	FILM	220PF	5%	100V
C3011	1-136-810-11	FILM	220PF	5%	100V
C3012	1-136-810-11	FILM	220PF	5%	100V
C3013	1-136-810-11	FILM	220PF	5%	100V
C3020	1-136-810-11	FILM	220PF	5%	100V
C3021	1-137-348-11	FILM	0.01uF	10%	400V
C3022	1-137-348-11	FILM	0.01uF	10%	400V
C3023	1-136-810-11	FILM	220PF	5%	100V
C3024	1-136-810-11	FILM	220PF	5%	100V
C3025	1-136-810-11	FILM	220PF	5%	100V

Ref. No.	Part No.	Description	Remark

< CONNECTOR >

* CN3010	1-564-342-11	PIN, CONNECTOR 8P
* CN3011	1-564-505-11	PLUG, CONNECTOR 2P
CN3012	1-564-320-00	PIN, CONNECTOR 2P
* CN3020	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P
* CN3021	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P
* CN3022	1-564-506-11	PLUG, CONNECTOR 3P

< JACK >

* CNJ3001	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P
* CNJ3002	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P
* CNJ3003	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P
* CNJ3004	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P

< DIODE >

D3001	8-719-987-63	DIODE 1N4148M
D3002	8-719-987-63	DIODE 1N4148M
D3003	8-719-987-63	DIODE 1N4148M
D3004	8-719-987-63	DIODE 1N4148M
D3005	8-719-987-63	DIODE 1N4148M
D3006	8-719-987-63	DIODE 1N4148M
D3008	8-719-987-63	DIODE 1N4148M

< IC >

IC3001	8-759-067-05	IC AD712JNS
IC3002	8-759-067-05	IC AD712JNS

< RESISTOR >

R3001	1-249-202-11	CARBON	470	5%	1/3W
R3002	1-249-210-11	CARBON	1K	5%	1/3W
R3003	1-249-210-11	CARBON	1K	5%	1/3W
R3004	1-249-210-11	CARBON	1K	5%	1/3W
R3005	1-249-202-11	CARBON	470	5%	1/3W
R3006	1-249-210-11	CARBON	1K	5%	1/3W
R3007	1-249-210-11	CARBON	1K	5%	1/3W
R3008	1-249-202-11	CARBON	470	5%	1/3W
R3009	1-249-210-11	CARBON	1K	5%	1/3W
R3010	1-249-210-11	CARBON	1K	5%	1/3W
R3011	1-249-202-11	CARBON	470	5%	1/3W
R3012	1-249-210-11	CARBON	1K	5%	1/3W
R3013	1-249-492-11	CARBON	47K	5%	1/3W
R3014	1-249-492-11	CARBON	47K	5%	1/3W
R3015	1-249-492-11	CARBON	47K	5%	1/3W
R3016	1-249-492-11	CARBON	47K	5%	1/3W
R3020	1-259-676-11	CARBON	1K	2%	1W
R3021	1-259-676-11	CARBON	1K	2%	1W
R3022	1-259-676-11	CARBON	1K	2%	1W
R3023	1-259-676-11	CARBON	1K	2%	1W
R3024	1-260-225-61	CARBON	2M	5%	1W
R3025	1-260-225-61	CARBON	2M	5%	1W

INPUT MAIN

Ref.No.	Part No.	Description	Remark
R3026	1-260-225-61	CARBON 2M 5% 1W	
R3027	1-260-225-61	CARBON 2M 5% 1W	
R3028	1-260-222-61	CARBON 220 0.50% 1W	
R3029	1-260-223-61	CARBON 470 0.50% 1W	
R3030	1-260-223-61	CARBON 470 0.50% 1W	
R3031	1-260-222-61	CARBON 220 0.50% 1W	
R3032	1-260-222-61	CARBON 220 0.50% 1W	
R3033	1-260-223-61	CARBON 470 0.50% 1W	
R3034	1-260-223-61	CARBON 470 0.50% 1W	
R3035	1-260-222-61	CARBON 220 0.50% 1W	
R3051	1-249-162-11	CARBON 10 5% 1/3W	
R3052	1-249-162-11	CARBON 10 5% 1/3W	
R3053	1-249-180-11	CARBON 56 5% 1/3W	
R3054	1-249-168-11	CARBON 18 5% 1/3W	
R3055	1-249-168-11	CARBON 18 5% 1/3W	
R3056	1-249-180-11	CARBON 56 5% 1/3W	

< VARIABLE RESISTOR >

Ref.No.	Part No.	Description	Remark
RV3001	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	
RV3002	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	

< RELAY >

Ref.No.	Part No.	Description	Remark
RY3001	1-515-887-11	RELAY	
RY3002	1-515-887-11	RELAY	
RY3003	1-515-887-11	RELAY	
RY3004	1-515-887-11	RELAY	
RY3005	1-515-887-11	RELAY	
RY3006	1-515-887-11	RELAY	
RY3007	1-515-887-11	RELAY	
RY3008	1-515-887-11	RELAY	
RY3009	1-515-887-11	RELAY	
RY3010	1-515-887-11	RELAY	
RY3011	1-515-887-11	RELAY	
RY3012	1-515-887-11	RELAY	
RY3013	1-515-887-11	RELAY	

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INPUT RELAY

Ref.No.	Part No.	Description	Remark
*	A-4345-581-A	MOUNTED PCB, INPUT RELAY ************************	
	3-831-441-XX	CUSHION	
*	4-924-264-21	TERMINAL, MOUNT	

< BUSBAR >

Ref.No.	Part No.	Description	Remark
* BB201	1-564-393-00	BUS BAR 9P	
* BB202	1-560-242-21	BUS BAR 4P	
* BB203	1-560-242-31	BUS BAR 5P	
* BB204	1-560-242-31	BUS BAR 5P	
* BB205	1-560-242-31	BUS BAR 5P	

< CAPACITOR >

Ref.No.	Part No.	Description	Remark
C201	1-136-810-11	FILM 220PF 5% 100V	
C202	1-136-810-11	FILM 220PF 5% 100V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
* CN201	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN202	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN203	1-569-997-11	PIN, CONNECTOR (PC BOARD) 10P	
* CN204	1-569-995-11	PIN, CONNECTOR (PC BOARD) 8P	
* CN205	1-564-505-11	PLUG, CONNECTOR 2P	
* CN210	1-564-506-11	PLUG, CONNECTOR 3P	
* CN211	1-564-506-11	PLUG, CONNECTOR 3P	
* CN212	1-564-506-11	PLUG, CONNECTOR 3P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D201	8-719-987-63	DIODE 1N4148M	
D202	8-719-987-63	DIODE 1N4148M	
D203	8-719-987-63	DIODE 1N4148M	
D204	8-719-987-63	DIODE 1N4148M	
D205	8-719-987-63	DIODE 1N4148M	
D206	8-719-987-63	DIODE 1N4148M	
D207	8-719-987-63	DIODE 1N4148M	
D208	8-719-987-63	DIODE 1N4148M	
D209	8-719-987-63	DIODE 1N4148M	
D210	8-719-987-63	DIODE 1N4148M	
D211	8-719-987-63	DIODE 1N4148M	
D212	8-719-987-63	DIODE 1N4148M	
D213	8-719-987-63	DIODE 1N4148M	
D214	8-719-987-63	DIODE 1N4148M	
D215	8-719-987-63	DIODE 1N4148M	
D216	8-719-987-63	DIODE 1N4148M	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R201	1-249-162-11	CARBON 10 5% 1/3W	
R202	1-249-162-11	CARBON 10 5% 1/3W	
R203	1-249-162-11	CARBON 10 5% 1/3W	
R204	1-249-162-11	CARBON 10 5% 1/3W	
R205	1-249-162-11	CARBON 10 5% 1/3W	
R206	1-249-162-11	CARBON 10 5% 1/3W	
R207	1-249-162-11	CARBON 10 5% 1/3W	
R208	1-249-210-11	CARBON 1K 5% 1/3W	
R209	1-249-210-11	CARBON 1K 5% 1/3W	
R212	1-249-210-11	CARBON 1K 5% 1/3W	
R213	1-249-210-11	CARBON 1K 5% 1/3W	
R220	1-259-468-11	CARBON 47K 5% 1/6W	
R221	1-259-468-11	CARBON 47K 5% 1/6W	

< RELAY >

Ref.No.	Part No.	Description	Remark
RY201	1-515-887-11	RELAY	
RY202	1-515-887-11	RELAY	

INPUT RELAY

POWER

Ref. No.	Part No.	Description	Remark
RY203	1-515-887-11	RELAY	
RY204	1-515-887-11	RELAY	
RY205	1-515-887-11	RELAY	
RY206	1-515-887-11	RELAY	
RY207	1-515-887-11	RELAY	
RY208	1-515-887-11	RELAY	
RY209	1-515-887-11	RELAY	
RY210	1-515-887-11	RELAY	
RY211	1-515-887-11	RELAY	
RY212	1-515-887-11	RELAY	
RY213	1-515-887-11	RELAY	
RY214	1-515-887-11	RELAY	
RY215	1-515-887-11	RELAY	
RY216	1-515-887-11	RELAY	
RY217	1-515-887-11	RELAY	
RY218	1-515-887-11	RELAY	
RY219	1-515-887-11	RELAY	
RY220	1-515-887-11	RELAY	
RY221	1-515-887-11	RELAY	
RY222	1-515-887-11	RELAY	
RY223	1-515-887-11	RELAY	
RY224	1-515-887-11	RELAY	
RY225	1-515-887-11	RELAY	
RY226	1-515-887-11	RELAY	
RY230	1-515-887-11	RELAY	

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* A-4345-963-A MOUNTED PCB, POWER

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Ref. No.	Part No.	Description
	1-533-183-11	HOLDER, FUSE
	2-371-561-00	BUSHING (P), INSULATING
	3-831-441-XX	CUSHION
	4-870-539-00	PLATE, GROUND
	4-916-721-01	SHEET, INSULATING
*	4-924-218-01	HOLDER (A), LED
	7-682-147-15	SCREW, TR
	7-682-546-09	SCREW +B 3X5
	9-911-837-XX	RETAINER, PC BOARD

< BUSBAR >

Ref. No.	Part No.	Description
* BB101	1-560-242-11	BUS BAR 3P
* BB102	1-560-242-11	BUS BAR 3P
* BB103	1-560-242-11	BUS BAR 3P
* BB104	4-908-950-01	REINFORCEMENT (A), PWB

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C102	1-161-744-00	CERAMIC	0.01uF		400V
C103	1-136-601-11	FILM	0.01uF	10%	630V
C104	1-136-601-11	FILM	0.01uF	10%	630V
C105	1-137-357-11	FILM	2.2uF	5%	160V
C106	1-128-471-11	ELECT	4700uF	20%	63V
C107	1-128-471-11	ELECT	4700uF	20%	63V
C108	1-128-471-11	ELECT	4700uF	20%	63V
C109	1-128-471-11	ELECT	4700uF	20%	63V
C110	1-136-171-00	FILM	0.33uF	5%	50V
C111	1-136-153-00	FILM	0.01uF	5%	50V
C112	1-136-165-00	FILM	0.1uF	5%	50V
C113	1-124-922-11	ELECT	1000uF	20%	63V
C120	1-136-810-11	FILM	220PF	5%	100V
C121	1-136-810-11	FILM	220PF	5%	100V
C122	1-124-918-11	ELECT	47uF	20%	63V
C123	1-124-918-11	ELECT	47uF	20%	63V
C124	1-124-918-11	ELECT	47uF	20%	63V
C125	1-124-918-11	ELECT	47uF	20%	63V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN102	1-564-336-00	PIN, CONNECTOR 2P

< JACK >

Ref. No.	Part No.	Description
* CNJ101	1-535-139-00	BASE POST 19MM (10MM PITCH) 2P
* CNJ103	1-535-139-00	BASE POST 19MM (10MM PITCH) 2P
* CNJ104	1-535-139-00	BASE POST 19MM (10MM PITCH) 2P

< DIODE >

Ref. No.	Part No.	Description
D101	8-719-200-40	DIODE C16P20FR
D102	8-719-200-40	DIODE C16P20FR
D103	8-719-200-39	DIODE C16P20F
D104	8-719-200-39	DIODE C16P20F
D105	8-719-200-69	DIODE C10P20FUR
D106	8-719-987-63	DIODE 1N4148M
D107	8-719-987-63	DIODE 1N4148M
D108	8-719-987-63	DIODE 1N4148M
D109	8-719-987-63	DIODE 1N4148M
D110	8-719-933-91	DIODE HZS18-1L
D115	8-719-933-91	DIODE HZS18-1L
D116	8-719-902-56	DIODE PC817
D117	8-719-902-56	DIODE PC817
D118	8-719-902-56	DIODE PC817
D119	8-719-902-56	DIODE PC817
D120	8-719-987-63	DIODE 1N4148M
D121	8-719-987-63	DIODE 1N4148M
D122	8-719-300-04	DIODE MV-104V
D123	8-719-300-04	DIODE MV-104V

< IC >

Ref. No.	Part No.	Description
IC101	8-759-231-53	IC M5F7805
IC102	8-759-067-05	IC AD712JNS
IC103	8-759-067-05	IC AD712JNS

POWER **OUT MAIN**

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q102	8-729-900-61	TRANSISTOR DTA114ES	
Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q104	8-729-119-77	TRANSISTOR 2SA1175-FEK	
Q106	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q107	8-729-119-79	TRANSISTOR 2SC2785-FEK	
Q108	8-729-900-80	TRANSISTOR DTC114ES	
Q109	8-729-119-77	TRANSISTOR 2SA1175-FEK	
Q110	8-729-119-77	TRANSISTOR 2SA1175-FEK	
Q111	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q115	8-729-141-10	TRANSISTOR 2SA985A	
Q116	8-729-141-10	TRANSISTOR 2SA985A	
Q117	8-729-141-60	TRANSISTOR 2SD809-KFE	
Q118	8-729-141-59	TRANSISTOR 2SB731-KFE	
Q119	8-729-107-53	TRANSISTOR 2SC2275A	
Q120	8-729-107-53	TRANSISTOR 2SC2275A	
Q125	8-729-200-56	TRANSISTOR 2SK241-GR	
Q126	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q127	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q128	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q129	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q130	8-729-200-56	TRANSISTOR 2SK241-GR	
Q131	8-729-200-56	TRANSISTOR 2SK241-GR	
Q132	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q133	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q134	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q135	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q136	8-729-200-56	TRANSISTOR 2SK241-GR	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
⚠R101	1-217-485-00	FUSIBLE 22 5% 1W	F
R102	1-249-613-11	CARBON 360K 5% 1/4W	
R103	1-249-469-11	CARBON 100K 5% 1/4W	
R104	1-249-469-11	CARBON 100K 5% 1/4W	
R105	1-249-527-11	CARBON 91 5% 1/4W	
R106	1-249-527-11	CARBON 91 5% 1/4W	
R107	1-247-725-11	CARBON 10K 5% 1/4W	
R108	1-249-465-11	CARBON 47K 5% 1/4W	
R109	1-247-725-11	CARBON 10K 5% 1/4W	
R110	1-247-725-11	CARBON 10K 5% 1/4W	
R111	1-247-704-11	CARBON 220 5% 1/4W	
R112	1-247-710-11	CARBON 560 5% 1/4W	
R113	1-247-711-11	CARBON 680 5% 1/4W	
R114	1-247-725-11	CARBON 10K 5% 1/4W	
R115	1-249-586-11	CARBON 27K 5% 1/4W	
R116	1-249-602-11	CARBON 120K 5% 1/4W	
R120	1-260-226-11	CARBON 1.5 5% 2W	
R121	1-260-226-11	CARBON 1.5 5% 2W	
R122	1-249-186-11	CARBON 100 5% 1/3W	
R123	1-249-186-11	CARBON 100 5% 1/3W	
R124	1-260-226-11	CARBON 1.5 5% 2W	
R125	1-260-226-11	CARBON 1.5 5% 2W	
R126	1-249-210-11	CARBON 1K 5% 1/3W	
R127	1-249-210-11	CARBON 1K 5% 1/3W	
R128	1-249-182-11	CARBON 68 5% 1/3W	
R129	1-249-202-11	CARBON 470 5% 1/3W	
R130	1-249-202-11	CARBON 470 5% 1/3W	
R131	1-249-182-11	CARBON 68 5% 1/3W	
R132	1-249-210-11	CARBON 1K 5% 1/3W	
R133	1-249-210-11	CARBON 1K 5% 1/3W	
R134	1-249-210-11	CARBON 1K 5% 1/3W	
R135	1-249-210-11	CARBON 1K 5% 1/3W	
R136	1-249-198-11	CARBON 330 5% 1/3W	
R137	1-249-210-11	CARBON 1K 5% 1/3W	
R138	1-249-226-11	CARBON 4.7K 5% 1/3W	
R139	1-249-226-11	CARBON 4.7K 5% 1/3W	
R140	1-249-210-11	CARBON 1K 5% 1/3W	
R141	1-249-198-11	CARBON 330 5% 1/3W	
R142	1-249-210-11	CARBON 1K 5% 1/3W	
R143	1-249-210-11	CARBON 1K 5% 1/3W	
R144	1-249-210-11	CARBON 1K 5% 1/3W	
R145	1-249-210-11	CARBON 1K 5% 1/3W	
R146	1-259-672-11	CARBON 680 2% 1W	
R147	1-259-672-11	CARBON 680 2% 1W	
R148	1-259-672-11	CARBON 680 2% 1W	
R149	1-259-672-11	CARBON 680 2% 1W	

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Ref. No.	Part No.	Description	Remark
*	A-4345-585-A	OUT MAIN BOARD, COMPLETE ************************	
	3-831-441-XX	CUSHION	
*	4-924-264-21	TERMINAL, MOUNT	
*	4-949-007-01	DAMPER (B)	

< BUSBAR >

Ref. No.	Part No.	Description	Remark
* BB4001	1-560-242-31	BUS BAR 5P	
* BB4002	1-560-242-11	BUS BAR 3P	
* BB4003	1-560-242-11	BUS BAR 3P	
* BB4004	1-560-242-11	BUS BAR 3P	
* BB4005	4-908-951-01	REINFORCEMENT (B), PWB	

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C4001	1-136-810-11	FILM 220PF 5% 100V	
C4002	1-137-349-11	FILM 0.47uF 5% 400V	
C4003	1-136-810-11	FILM 220PF 5% 100V	
C4004	1-137-349-11	FILM 0.47uF 5% 400V	
C4010	1-137-348-11	FILM 0.01uF 10% 400V	
C4011	1-137-348-11	FILM 0.01uF 10% 400V	
C4012	1-137-348-11	FILM 0.01uF 10% 400V	
C4013	1-137-348-11	FILM 0.01uF 10% 400V	
C4014	1-137-348-11	FILM 0.01uF 10% 400V	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

OUT MAIN

Ref. No.	Part No.	Description			Remark
C4015	1-137-348-11	FILM	0.01uF	10%	400V
C4020	1-128-470-11	ELECT	1500uF	20%	63V
C4021	1-128-470-11	ELECT	1500uF	20%	63V
C4022	1-136-810-11	FILM	220PF	5%	100V
C4023	1-136-810-11	FILM	220PF	5%	100V
C4024	1-136-810-11	FILM	220PF	5%	100V
C4025	1-136-810-11	FILM	220PF	5%	100V
C4026	1-104-321-11	POLYSTYRENE	22PF	10%	400V
C4027	1-104-321-11	POLYSTYRENE	22PF	10%	400V
C4034	1-136-808-11	FILM	100PF	5%	100V
C4035	1-136-808-11	FILM	100PF	5%	100V
		< CONNECTOR >			
* CN4003	1-564-341-11	PIN, CONNECTOR 7P			
* CN4004	1-564-342-11	PIN, CONNECTOR 8P			
* CN4005	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P			
CN4007	1-564-507-11	PLUG, CONNECTOR 4P			
* CN4008	1-564-505-11	PLUG, CONNECTOR 2P			
* CN4012	1-564-505-11	PLUG, CONNECTOR 2P			
* CN4013	1-564-505-11	PLUG, CONNECTOR 2P			
* CN4014	1-564-505-11	PLUG, CONNECTOR 2P			
* CN4015	1-564-336-00	PIN, CONNECTOR 2P			
			(Serial No. 45000051 and later)		
		< JACK >			
* CNJ400	1-573-899-11	PIN, CONNECTOR (PC BOARD) 8P			
		< DIODE >			
D4003	8-719-987-63	DIODE 1N4148M			
D4004	8-719-987-63	DIODE 1N4148M			
D4005	8-719-987-63	DIODE 1N4148M			
D4006	8-719-987-63	DIODE 1N4148M			
D4009	8-719-987-63	DIODE 1N4148M			
D4010	8-719-987-63	DIODE 1N4148M			
D4011	8-719-987-63	DIODE 1N4148M			
D4012	8-719-987-63	DIODE 1N4148M			
D4013	8-719-987-63	DIODE 1N4148M			
D4014	8-719-987-63	DIODE 1N4148M			
D4015	8-719-987-63	DIODE 1N4148M			
D4016	8-719-987-63	DIODE 1N4148M			
D4021	8-719-987-63	DIODE 1N4148M			
D4022	8-719-987-63	DIODE 1N4148M			
D4023	8-719-987-63	DIODE 1N4148M			
D4024	8-719-987-63	DIODE 1N4148M			
D4025	8-719-987-63	DIODE 1N4148M			
			(Serial No. 45000051 and later)		
		< IC >			
IC4001	8-759-067-05	IC AD712JNS			
IC4002	8-759-067-05	IC AD712JNS			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R4005	1-249-200-11	CARBON	390	5%	1/3W
R4006	1-249-208-11	CARBON	820	5%	1/3W
R4008	1-260-225-61	CARBON	2M	5%	1W
R4010	1-249-208-11	CARBON	820	5%	1/3W
R4011	1-249-200-11	CARBON	390	5%	1/3W
R4012	1-260-225-61	CARBON	2M	5%	1W
R4013	1-259-700-11	CARBON	10K	2%	1W
R4014	1-260-222-61	CARBON	220	0.50%	1W
R4015	1-259-669-11	CARBON	510	2%	1W
R4016	1-259-669-11	CARBON	510	2%	1W
R4017	1-259-748-11	CARBON	1M	2%	1W
R4018	1-249-234-11	CARBON	10K	5%	1/3W
R4019	1-249-234-11	CARBON	10K	5%	1/3W
R4020	1-259-748-11	CARBON	1M	2%	1W
R4021	1-260-222-61	CARBON	220	0.50%	1W
R4024	1-259-700-11	CARBON	10K	2%	1W
R4025	1-259-700-11	CARBON	10K	2%	1W
R4026	1-259-700-11	CARBON	10K	2%	1W
R4030	1-260-218-61	CARBON	2.2	10%	1W
R4031	1-260-218-61	CARBON	2.2	10%	1W
R4032	1-260-218-61	CARBON	2.2	10%	1W
R4033	1-260-218-61	CARBON	2.2	10%	1W
R4034	1-260-218-61	CARBON	2.2	10%	1W
R4035	1-260-218-61	CARBON	2.2	10%	1W
R4036	1-260-218-61	CARBON	2.2	10%	1W
R4037	1-260-218-61	CARBON	2.2	10%	1W
R4038	1-260-218-61	CARBON	2.2	10%	1W
R4039	1-260-218-61	CARBON	2.2	10%	1W
R4040	1-260-218-61	CARBON	2.2	10%	1W
R4041	1-260-218-61	CARBON	2.2	10%	1W
R4051	1-249-170-11	CARBON	22	5%	1/3W
R4052	1-249-170-11	CARBON	22	5%	1/3W
R4053	1-249-170-11	CARBON	22	5%	1/3W
R4054	1-249-170-11	CARBON	22	5%	1/3W
R4055	1-249-186-11	CARBON	100	5%	1/3W
R4056	1-249-186-11	CARBON	100	5%	1/3W
		< VARIABLE RESISTOR >			
RV4001	1-224-252-XX	RES, ADJ, METAL GLAZE 10K			
RV4002	1-224-252-XX	RES, ADJ, METAL GLAZE 10K			
		< RELAY >			
RY4003	1-515-614-11	RELAY			
RY4004	1-515-614-11	RELAY			
RY4005	1-515-614-11	RELAY			
RY4006	1-515-614-11	RELAY			
RY4010	1-515-887-11	RELAY			
RY4011	1-515-887-11	RELAY			
RY4012	1-515-887-11	RELAY			

Ref. No.	Part No.	Description	Remark
RY4013	1-515-887-11	RELAY	
RY4014	1-515-887-11	RELAY	
RY4015	1-515-887-11	RELAY	
RY4016	1-515-887-11	RELAY	
RY4017	1-515-887-11	RELAY	
RY4018	1-515-887-11	RELAY	
RY4019	1-515-887-11	RELAY	
RY4021	1-515-614-11	RELAY	
RY4022	1-515-614-11	RELAY	
RY4023	1-515-614-11	RELAY	
RY4024	1-515-614-11	RELAY	
RY4026	1-515-614-11	RELAY	
RY4027	1-515-614-11	RELAY	
RY4028	1-515-614-11	RELAY (Serial No. 45000051 and later)	
RY4029	1-515-614-11	RELAY (Serial No. 45000051 and later)	

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Ref. No.	Part No.	Description	Remark
*	1-641-946-11	PC BOARD ********	
		< CONNECTOR >	
* CN651	1-564-496-11	PIN, CONNECTOR 3P	
		< DIODE >	
D651	8-719-975-18	DIODE GP1S51	

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Ref. No.	Part No.	Description	Remark
*	A-4345-584-A	PI UNIT BOARD, COMPLETE ***********************	
		< CAPACITOR >	
C3101	1-136-813-11	FILM 680PF 5% 100V	
C3102	1-136-808-11	FILM 100PF 5% 100V	
C3114	1-136-810-11	FILM 220PF 5% 100V	
		< DIODE >	
D3101	8-719-300-04	DIODE MV-104V	
		< TRANSISTOR >	
Q3101	8-759-108-01	IC uPA68HA-M	
Q3102	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3103	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3106	8-729-216-22	TRANSISTOR 2SA1162	
Q3107	8-729-216-22	TRANSISTOR 2SA1162	
Q3108	8-729-232-69	TRANSISTOR 2SK208GR3	
Q3109	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3110	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3114	8-729-216-22	TRANSISTOR 2SA1162	
Q3115	8-729-216-22	TRANSISTOR 2SA1162	
Q3116	8-729-216-22	TRANSISTOR 2SA1162	
Q3117	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3118	8-729-230-49	TRANSISTOR 2SC2712-G	
Q3119	8-729-321-35	TRANSISTOR 2SK213	
Q3120	8-729-307-65	TRANSISTOR 2SJ76	
		< RESISTOR >	
R3101	1-249-208-11	CARBON 820 5% 1/3W	
R3102	1-249-208-11	CARBON 820 5% 1/3W	
R3103	1-249-192-11	CARBON 180 5% 1/3W	
R3104	1-249-192-11	CARBON 180 5% 1/3W	
R3105	1-249-192-11	CARBON 180 5% 1/3W	
R3106	1-249-210-11	CARBON 1K 5% 1/3W	
R3107	1-249-234-11	CARBON 10K 5% 1/3W	
R3108	1-249-234-11	CARBON 10K 5% 1/3W	
R3109	1-249-218-11	CARBON 2.2K 5% 1/3W	
R3110	1-249-217-11	CARBON 2K 5% 1/3W	
R3111	1-249-194-11	CARBON 220 5% 1/3W	
R3115	1-249-199-11	CARBON 360 5% 1/3W	
R3117	1-249-192-11	CARBON 180 5% 1/3W	
R3118	1-249-192-11	CARBON 180 5% 1/3W	
R3119	1-249-212-11	CARBON 1.2K 5% 1/3W	
		< VARIABLE RESISTOR >	
RV3101	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	

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Ref. No.	Part No.	Description	Remark
*	1-641-939-11	PL BOARD ********	
		< CAPACITOR >	
C171	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
* CN171	1-564-336-00	PIN, CONNECTOR 2P	
		< DIODE >	
D171	8-719-303-02	DIODE SEL2510C-D	

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Ref. No.	Part No.	Description	Remark
*	A-4345-586-A	PO UNIT BOARD, COMPLETE ***********************	
		< CAPACITOR >	
C4101	1-136-813-11	FILM 680PF 5% 100V	
C4102	1-136-808-11	FILM 100PF 5% 100V	
C4114	1-136-810-11	FILM 220PF 5% 100V	

PO UNIT ROTARY

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D4101	8-719-300-04	DIODE MV-104V	
		< TRANSISTOR >	
Q4101	8-759-108-01	IC uPA68HA-M	
Q4102	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4103	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4104	8-729-232-69	TRANSISTOR 2SK208GR3	
Q4105	8-729-232-69	TRANSISTOR 2SK208GR3	
Q4106	8-729-216-22	TRANSISTOR 2SA1162	
Q4107	8-729-216-22	TRANSISTOR 2SA1162	
Q4108	8-729-232-69	TRANSISTOR 2SK208GR3	
Q4109	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4110	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4111	8-729-232-69	TRANSISTOR 2SK208GR3	
Q4112	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4113	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4114	8-729-216-22	TRANSISTOR 2SA1162	
Q4115	8-729-216-22	TRANSISTOR 2SA1162	
Q4116	8-729-216-22	TRANSISTOR 2SA1162	
Q4117	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4118	8-729-230-49	TRANSISTOR 2SC2712-G	
Q4119	8-729-321-35	TRANSISTOR 2SK213	
Q4120	8-729-307-65	TRANSISTOR 2SJ76	
		< RESISTOR >	
R4101	1-249-208-11	CARBON 820 5% 1/3W	
R4102	1-249-208-11	CARBON 820 5% 1/3W	
R4103	1-249-192-11	CARBON 180 5% 1/3W	
R4104	1-249-192-11	CARBON 180 5% 1/3W	
R4105	1-249-210-11	CARBON 1K 5% 1/3W	
R4106	1-249-210-11	CARBON 1K 5% 1/3W	
R4107	1-249-234-11	CARBON 10K 5% 1/3W	
R4108	1-249-234-11	CARBON 10K 5% 1/3W	
R4109	1-249-218-11	CARBON 2.2K 5% 1/3W	
R4110	1-249-217-11	CARBON 2K 5% 1/3W	
R4111	1-249-194-11	CARBON 220 5% 1/3W	
R4115	1-249-199-11	CARBON 360 5% 1/3W	
R4117	1-249-192-11	CARBON 180 5% 1/3W	
R4118	1-249-192-11	CARBON 180 5% 1/3W	
R4119	1-249-212-11	CARBON 1.2K 5% 1/3W	
R4120	1-249-232-11	CARBON 8.2K 5% 1/3W	
R4121	1-249-232-11	CARBON 8.2K 5% 1/3W	
R4122	1-249-234-11	CARBON 10K 5% 1/3W	
R4123	1-249-217-11	CARBON 2K 5% 1/3W	
R4124	1-249-212-11	CARBON 1.2K 5% 1/3W	
		< VARIABLE RESISTOR >	
RV4101	1-224-252-XX	RES, ADJ, METAL GLAZE 10K	
**			
*	A-4345-758-A	ROTARY BOARD, COMPLETE **********************	
		< CAPACITOR >	
C631	1-163-034-00	CERAMIC CHIP 0.033uF 50V	
C632	1-164-336-11	CERAMIC CHIP 0.33uF 25V	
C639	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C640	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C641	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C642	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C643	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C644	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C645	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
		< CONNECTOR >	
* CN631	1-564-337-00	PIN, CONNECTOR 3P	
* CN632	1-506-503-11	PIN, CONNECTOR 9P	
* CN633	1-564-341-11	PIN, CONNECTOR 7P	
* CN634	1-564-338-00	PIN, CONNECTOR 4P	
* CN635	1-564-342-11	PIN, CONNECTOR 8P	
* CN636	1-506-503-11	PIN, CONNECTOR 9P	
		< DIODE >	
D631	8-719-801-78	DIODE 1SS184	
D632	8-719-801-78	DIODE 1SS184	
D633	8-719-801-78	DIODE 1SS184	
D634	8-719-801-78	DIODE 1SS184	
D635	8-719-801-78	DIODE 1SS184	
D639	8-719-801-78	DIODE 1SS184	
D640	8-719-801-78	DIODE 1SS184	
D642	8-719-801-78	DIODE 1SS184	
D643	8-719-801-78	DIODE 1SS184	
D645	8-719-801-78	DIODE 1SS184	
D646	8-719-801-78	DIODE 1SS184	
D647	8-719-801-78	DIODE 1SS184	
		< IC >	
IC631	8-759-206-28	IC MC74HC123AF	
IC632	8-759-232-16	IC TC74HC14AF-TP1	
IC633	8-759-032-01	IC MC74HC00AF	
IC634	8-759-232-92	IC TC74HC244AF-TP1	
IC635	8-759-232-92	IC TC74HC244AF-TP1	
IC636	8-759-232-92	IC TC74HC244AF-TP1	
IC637	8-759-232-92	IC TC74HC244AF-TP1	
		< TRANSISTOR >	
Q631	8-729-805-43	TRANSISTOR 2SC3396	
Q632	8-729-805-43	TRANSISTOR 2SC3396	
Q633	8-729-805-43	TRANSISTOR 2SC3396	

Ref. No.	Part No.	Description				Remark
Q634	8-729-230-49	TRANSISTOR 2SC2712-G				
Q635	8-729-230-49	TRANSISTOR 2SC2712-G				
Q636	8-729-230-49	TRANSISTOR 2SC2712-G				
		< RESISTOR >				
R631	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R632	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R633	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R634	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R635	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R636	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R637	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R638	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R639	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R640	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R641	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R642	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R643	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R644	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R645	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R646	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R647	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R648	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R649	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R650	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R651	1-216-073-00	METAL CHIP	10K	5%	1/10W	
		< SWITCH >				
S631	1-692-004-11	SEITCH, ROTARY				
S632	1-692-005-11	SWITCH, ROTARY				
S633	1-692-007-11	SWITCH, ROTARY				

****

Ref. No.	Part No.	Description	Remark
*	1-641-943-11	SWITCH (L) BOARD ****************	
		< CONNECTOR >	
* CN611	1-564-495-11	PIN, CONNECTOR 2P	
CN612	1-506-615-11	PIN, CONNECTOR 9P	
		< DIODE >	
D610	8-719-801-78	DIODE 1SS184	
D611	8-719-801-78	DIODE 1SS184	
D612	8-719-801-78	DIODE 1SS184	
D616	8-719-801-78	DIODE 1SS184	
		< TRANSISTOR >	
Q611	8-729-805-43	TRANSISTOR 2SC3396	
Q612	8-729-230-49	TRANSISTOR 2SC2712-G	

Ref. No.	Part No.	Description				Remark
		< RESISTOR >				
R611	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R614	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R615	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R616	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R617	1-216-073-00	METAL CHIP	10K	5%	1/10W	
		< SWITCH >				
S611	1-692-006-11	SWITCH, ROTARY (INPUT SELECTOR) 6P				

****

Ref. No.	Part No.	Description				Remark
*	1-641-944-11	SWITCH (R) BOARD ****************				
		< CONNECTOR >				
* CN601	1-564-500-11	PIN, CONNECTOR 7P				
* CN602	1-564-497-11	PIN, CONNECTOR 4P				
		< DIODE >				
D601	8-719-801-78	DIODE 1SS184				
D602	8-719-801-78	DIODE 1SS184				
D603	8-719-801-78	DIODE 1SS184				
D604	8-719-801-78	DIODE 1SS184				
D609	8-719-801-78	DIODE 1SS184				
		< TRANSISTOR >				
Q601	8-729-805-43	TRANSISTOR 2SC3396				
Q602	8-729-230-49	TRANSISTOR 2SC2712-G				
		< RESISTOR >				
R601	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R603	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R604	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R605	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R606	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R607	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R608	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R609	1-216-073-00	METAL CHIP	10K	5%	1/10W	
		< SWITCH >				
S601	1-692-008-11	SWITCH, ROTARY (INPUT SELECTOR) 8P				

****

Ref. No.	Part No.	Description	Remark
*	1-643-077-11	TAPE BOARD **********	

U IN U OUT VOLUME

****

Ref. No.	Part No.	Description	Remark
*	1-641-934-11	U IN BOARD **********	

****

Ref. No.	Part No.	Description	Remark
*	1-642-030-11	U OUT BOARD ***********	

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C4501	1-136-478-11	FILM 470PF 5%	630V
C4502	1-136-478-11	FILM 470PF 5%	630V
C4503	1-136-478-11	FILM 470PF 5%	630V
C4504	1-136-478-11	FILM 470PF 5%	630V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN4501	1-573-864-11	PIN, CONNECTOR (PC BOARD) 5P	

< COIL >

Ref. No.	Part No.	Description	Remark
L4501	1-424-397-11	COIL, CHOKE 200uH	
L4502	1-424-397-11	COIL, CHOKE 200uH	
L4503	1-424-397-11	COIL, CHOKE 200uH	
L4504	1-424-397-11	COIL, CHOKE 200uH	

****

Ref. No.	Part No.	Description	Remark
*	1-641-930-11	VOLUME BOARD ************	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN2501	1-564-518-11	PLUG, CONNECTOR 3P	
* CN2502	1-573-863-11	PIN, CONNECTOR (PC BOARD) 4P	
* CN2503	1-573-863-11	PIN, CONNECTOR (PC BOARD) 4P	
* CN2504	1-573-862-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN2505	1-564-517-11	PLUG, CONNECTOR 2P	
* CN2506	1-564-517-11	PLUG, CONNECTOR 2P	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
* RV2501	1-241-752-11	RES, VAR, CARBON 20KX3 (ATTENUATOR)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-465-979-11	REMOTE COMMANDER (RM-ER1)	
	1-690-294-11	CORD, CONNECTION	
	1-691-675-11	PLUG, LOAD	
*	4-947-753-01	CUSHION (A)	
*	4-947-754-01	CUSHION (B)	
*	4-947-755-01	INDIVIDUAL CARTON	

****

HARDWARE LIST

Ref. No.	Part No.	Description	Remark
#1	7-621-775-20	SCREW +B 2.6X5	
#2	7-623-954-01	WASHER 3.0, FIBER	
#3	7-623-955-01	WASHER 4.0, FIBER	
#4	7-682-246-04	SCREW +K 3X5	
#5	7-682-247-09	SCREW +K 3X6	
#6	7-682-545-09	SCREW +B 3X4	
#7	7-682-546-09	SCREW +B 3X5	
#8	7-682-547-09	SCREW +B 3X6	
#9	7-682-548-09	SCREW (3X8)	
#10	7-682-549-09	SCREW +B 3X10	
#11	7-682-550-09	SCREW +B 3X12	
#12	7-682-552-09	SCREW +B 3X16	
#13	7-682-567-09	SCREW +B 4X25	
#14	7-683-425-04	BOLT, HEXAGON SOCKET 4X20	
#15	7-684-023-04	N 3, TYPE 2	
#16	7-684-024-04	N 4, TYPE 2	
#17	7-685-870-09	SCREW +BVTT 3X5 (S)	
#18	7-682-147-15	SCREW, TR	
#18	7-682-147-15	SCREW, TR	
#19	7-685-874-09	+BVTT 3X12	

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